TIETON PH CALIBRATION FORMS
Water Quality (pH) Meter Calibration Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project: 38310188
Unit Identifier: #473677 PC-10

Equipment Calibration:
All water quality monitoring equipment will be calibrated and adjusted to operate within the manufacturers’ specifications. Water quality instruments and equipment that require calibration are to be calibrated to specifications prior to each use each day. In addition, a one-point calibration check is made at midday. A final check is conducted at the end of each field day. This final check is not a recalibration of the meter but a check of the calibration to ensure the continued accuracy of the meter. All calibration information shall be recorded below.

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<thead>
<tr>
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<th>Time of Initial Calibration</th>
<th>Standards Used</th>
<th>Initials</th>
<th>Time of Mid-Day Calibration Check</th>
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<th>Time of Final Daily Calibration Check</th>
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Field Supervisor initials: [signature]
Date: 9/15

Sample Lead Initials: [signature]
Date: 9/15
Equipment Calibration:

All water quality monitoring equipment will be calibrated and adjusted to operate within the manufacturers’ specifications. Water quality instruments and equipment that require calibration are to be calibrated to specifications prior to each use each day. In addition, a one-point calibration check is made at midday. A final check is conducted at the end of each field day. This final check is not a recalibration of the meter but a check of the calibration to ensure the continued accuracy of the meter. All calibration information shall be recorded below.

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Sample Lead Initials: [Signature] Date: 10/4
Field Supervisor Initials: [Signature] Date: 11/11/13
Equipment Calibration:

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Sample Lead Initials: [Signature]
Date: 10/24/13

Field Supervisor Initials: [Signature]
Date: 10/24/13
TAHOMA PH CALIBRATION FORMS
Equipment Calibration:

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Field Supervisor Initials: [Signature] Date: 9/12/13
Sample Lead Initials: [Signature] Date: 9/12/13

URS
Water Quality (pH) Meter Calibration Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189

Unit Make: OAKTON  
Extech "Exstik"  
Model Number: 10 Series  
Serial Number: 609784

Equipment Calibration:
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Sample Lead initials: [Initials]  
Date: 11/1/13  
Field Supervisor initials: [Initials]  
Date: 11/1/13
Water Quality (pH) Meter Calibration Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Unit Make: OXKTON P6-10
Model Number: PL-10
Serial Number: 317790

Equipment Calibration:
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Sample Lead Initials: [Signature]  Date: 10/11/13
Field Supervisor Initials: [Signature]  Date: 11/11/13
Water Quality (pH) Meter Calibration Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189

Unit Make: EYTECH

Model Number: EX Setup

Serial Number: 25793

Equipment Calibration:
All water quality monitoring equipment will be calibrated and adjusted to operate within the manufacturers’ specifications. Water quality instruments and equipment that require calibration are to be calibrated to specifications prior to each use each day. In addition, a one-point calibration check is made at midday. A final check is conducted at the end of each field day. This final check is not a recalibration of the meter but a check of the calibration to ensure the continued accuracy of the meter. All calibration information shall be recorded below.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time of Initial Calibration</th>
<th>Standards Used</th>
<th>Reading</th>
<th>Initials</th>
<th>Time of Mid-Day Calibration Check</th>
<th>Reading</th>
<th>Initials</th>
<th>Time of Final Daily Calibration Check</th>
<th>Reading</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/21/13</td>
<td>0807</td>
<td>7, 10</td>
<td>706.10</td>
<td>MW</td>
<td>12:31</td>
<td>6.46</td>
<td>9.47</td>
<td>16:14</td>
<td>6.52</td>
<td>9.43</td>
</tr>
<tr>
<td>10/22/13</td>
<td>0800</td>
<td>7, 10</td>
<td>706.10</td>
<td>MW</td>
<td>Not Conducted</td>
<td></td>
<td></td>
<td>16:06</td>
<td>6.83</td>
<td>9.76</td>
</tr>
<tr>
<td>10/24/13</td>
<td>0830</td>
<td>7, 10</td>
<td>706.10</td>
<td>MW</td>
<td>NOT Conducted</td>
<td></td>
<td></td>
<td>NOT Conducted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Lead Initials: MV  Date: 10/24/13
Field Supervisor Initials: DA  Date: 11/11/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189  
Station Identifier: 1-B4

Date: 10/23/13  
Vessel: MAZAMA

Sampling Crew: VETER/PANTHER/BRUMAN  
Vessel Crew: TRUDER/COILIN

EPA Observer: 1082  
C.R. Observer: SOKOL/SUSTINMK

Arrival Time: 12:49  
Departure Time: 13:12

River Stage:  
Water Surface Elev. (ft):  
Water Surface Elevation Source:  

Weather Conditions Upon Arrival  
Temp (°F): 55°  
Wind (mph): <5  
Clouds/Precipitation: CLEAR

Site Information:  
Boat Position: Powered, Anchored  
River Mile: 7.37

Water Surface: Calm  
River Current: Swift, Eddie, Calm, Ripple  

Water Vegetation Present: Yes  
Boat Traffic: Pumpkin, Dogy  
Was Vegetation Removed: Yes, No

Surface Vegetation Present: No  
Notable shore surface features: Large gravel bar to east. Sloped bank to west. Flat bench

Sample Location Photo IDs:  
(see Photo Log for descriptions)  
Camera ID: PENTAX OPTIO-T1

Photo ID: 122-0769 Time: 12:50  
Photo ID: 122-0760 Time: 12:50

Photo ID: 122-0781 Time: 12:50  
Photo ID: 122-0782 Time: 12:50

General Notes:  
COMPLETED 9 GRAB W/ NO RECOVERY
FINE SEDIMENT: COBBLES ONLY
NO SAMPLE COLLECTED

C.R.: cultural resources

Field Supervisor Initials: KIM  
Sample Lead Initials: IMI  
Date: 10/23/13

URS
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>14 5</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>11:53</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
<td>Sampler Penetration (inches):</td>
<td>Indeterminate/No recovery</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted Rejected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porewater Cumulative Percent of Porewater Syringe filled:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH of Sediment in Sampler:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type: % Silt (&lt;1/16 mm)</td>
<td></td>
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</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color: Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary: Present?</td>
<td>Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Amphipods:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debris (twigs/leaves):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tubules:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Macrophytes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Collected Using</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
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<td></td>
<td></td>
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<tr>
<td>Ponor</td>
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<td></td>
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<tr>
<td>Shovel</td>
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<tr>
<td>Other:</td>
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<tr>
<td>Photo Numbers 's (see Photo Log for descriptions)</td>
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<tr>
<td>Sediment in Grab:</td>
<td></td>
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<tr>
<td>Time:</td>
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<td></td>
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<tr>
<td>Homogenized Sample:</td>
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<td>Time:</td>
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<td>Other:</td>
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<tr>
<td>Time:</td>
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</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Containers:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td># Containers:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Volume:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Silt SE Samples (EPA/NPS/CCT):</td>
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</tr>
<tr>
<td>Time:</td>
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<tr>
<td># Containers:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Containers:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Lead Initials: NW Date: 1/23/13 Field Supervisor Initials: OH Date: 10/26/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>1-B4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>15.01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>12.55</td>
<td>&lt;2.9</td>
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<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:**

- **EASTING:** 445 726.15
- **NORTHING:** 542094.26

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __%
- Description: __

**pH of Sediment in Sampler:** __ su

**Sediment Characteristics**

- **Type:**
  - % Silt (1/64 to 1/16 mm)
  - % Sand (1/16 - 2 mm)
  - % Gravel
  - % Cobbles
  - % Silica Glass

- **Color:** Munsell Color Chart #:
- **Description:** __
- **Redox Boundary:**
  - Present?: Yes
  - If present -- Depth Below: __
  - Sediment Surface (inches): __
- **Odor:** None
- **Other:** Hydrogen sulfide

**Amphipods:** __

**Tubes:** __

**Macrophytes:** __

**Sample Collected Using**

- **Stratified sediment:** No
- **Sheen Present:** No

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**
- **Other:**

- **Sediment in Grab:**__
- **Time:**__
- **Homogenized Sample:**__
- **Time:**__
- **Other:**__
- **Time:**__

**Sediment (SE) Sample ID:**__
- **Time:**__
- **# Containers:**__
- **Volume:**__

**Duplicate SE Sample ID:**__
- **Time:**__
- **# Containers:**__
- **Volume:**__

**Split SE Samples (EPA/NPS/CCT):**__
- **Time:**__
- **# Containers:**__
- **Volume:**__

**Pore Water (PW) Sample ID:**__
- **Time:**__
- **# Containers:**__
- **Volume:**__

**Sample Lead Initials:** MW
**Date:** 10/23/13

**Field Supervisor Initials:** 28
**Date:** 10/24/13

**URS**

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 1-BY
Anchor Point (max 3) 1 2 3
Water Depth (feet): 15.01
Drop # 1 2 3 Cast Time 12:57
Sampler Penetration (inches): < 3"
Angle (< 5°max) Yes No
Cultural Resources Observed? No Yes
Sample Location: 445715.64 (NAD_83_UTM_Zone_11_North)
EASTING: 5426970.46
NORTHING:

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___ % Accepted Rejected
pH of Sediment in Sampler: ___ su Description:

Sediment Characteristics
Type: % Silt (1/16 mm) Color: Munsell Color Chart #:
% Sand (1/16 - 2 mm) Description:
% Gravel
% Cobble 100 Redox Boundary:
% Silica Glass:

Odor: None Hydrogen sulfide Other:

Amphipods: Debris (twigs/leaves): Tubes: Macrophytes:

Sample Collected Using
Van Veen Eckman
Sheen Present: Yes No
Ponar Homogenized Sample:
Shovel Other:

Sediment (SE) Sample ID: Time: # Containers: Volume:
Duplicate SE Sample ID: Time: # Containers: Volume:
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume:
Pore Water (PW) Sample ID: Time: # Containers: Volume:

Sample Lead Initials: MW Date: 9/23/13
Field Supervisor Initials: LA Date: 9/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1-B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 14.6'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1257</td>
<td>Sampler Penetration (inches): Indeterminate</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

Sample Location: [NAD_83_UTM_Zone_11_North]  
EASTING: 445702.48  NORTHING: 5720969.37

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment/loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: su</td>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td></td>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary: Present? Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: Time: # Containers: Volume: %

Duplicate SE Sample ID: Time: # Containers: Volume: %

Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %

Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 10/23/13  
Field Supervisor Initials: Date: 10/24/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

*URS*
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 1-B24

Anchor Point (max 3) 1 2 3 Water Depth (feet): 15-4'
Drop #: 1 2 3 Cast Time: 13:02
Sampler Penetration (inches): [Determine / No Recede]
Angle (< 5°max) Yes No Cultural Resources Observed? No Yes
Sample Location: 44°56'41.3" NAD 83 UTM Zone 11 North
EASTING: 5421001.01
NORTHING: 5421001.01

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___ su Description: ___

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm)
% Gravel % Cobbles % Silica Glass
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
Sediment Surface (inches):
Odor: None Hydrogen sulfide
Other: ___

Amphipods: ___ Tubes: ___ Macrophytes: ___
Debris (twigs/leaves): ___

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Sediment in Grab: Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ Time: ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample Lead Initials: MV Date: 10/03/13 Field Supervisor Initials: ___ Date: 10/24/13
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36010189 | **Station Identifier:** 1-3B4

- **Anchor Point (max 3):** 1 | 2 | 3
- **Water Depth (feet):** 14.1
- **Drop #:** 1 | 2 | 3
- **Cast Time:** 13:04
- **Sampler Penetration (inches):** <2
- **Angle (< 5° max):** Yes | No
- **Cultural Resources Observed?** No | Yes

**Sample Location:** 411532_664681 [NAD_83_UTM_Zone_11_North]

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES/NO**
2. Overlying water present? **YES/NO**
3. Overlying water excessively turbid? **YES/NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES/NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES/NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES/NO**
7. Sample is: Accepted | Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:** ___%
- **pH of Sediment in Sampler:** ___ su
- **Description:**

**Sediment Characteristics**

- **Type:**
  - % Silt: ___ (<1/16 mm)
  - % Sand: ___ (1/16 - 2 mm)
  - % Gravel: ___
  - % Cobbles: 100
- **% Silica Glass:**
- **Color:** Munsell Color Chart #:
  - Description:
- **Redox Boundary:**
  - Present? Yes | No
  - If present -- Depth Below Sediment Surface (inches):
- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

**Amphipods:**

- **Tubes:**
- **Macrophytes:**

**Debris (twigs/leaves):**

**Sample Collected Using**

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

**Photo Numbers’ (see Photo Log for descriptions)**

- **Sediment in Grab:**
  - Time:
  - # Containers:
  - Volume:
  - %
- **Homogenized Sample:**
  - Time:
  - # Containers:
  - Volume:
  - %
- **Other:**
  - Time:
  - # Containers:
  - Volume:
  - %
- **Sediment (SE) Sample ID:**
  - Time:
  - # Containers:
  - Volume:
  - %
- **Duplicate SE Sample ID:**
  - Time:
  - # Containers:
  - Volume:
  - %
- **Split SE Samples (EPA/NPS/CCT):**
  - Time:
  - # Containers:
  - Volume:
  - %
- **Pore Water (PW) Sample ID:**
  - Time:
  - # Containers:
  - Volume:
  - %

**Sample Lead Initials:** MW | **Date:** 1/23/13

**Field Supervisor Initials:** BA | **Date:** 1/24/13

---

**Sample ID Format:**

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1-134</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td></td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>1306</td>
</tr>
<tr>
<td>Angle (&lt;3° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>15.21</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>Undetermined/No Recovery</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
</tr>
<tr>
<td>EASTING: 445 732.39</td>
<td>NORTING: 542085.51</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __%  Accepted Rejected
- pH of Sediment in Sampler: __________ su
- Description: __________

**Sediment Characteristics**

- Type: % Silt (<1/16 mm) __________
- % Sand (1/16 - 2 mm) __________
- % Gravel __________
- % Cobbles __________
- % Silica Glass __________
- Color: Munsell Color Chart #: __________
- Description: __________
- Redox Boundary: Present? Yes No
- If present -- Depth Below Sediment Surface (inches): __________
- Odor: None Hydrogen sulfide Other: __________

**Amphipods:**

- Tubules: __________
- Macrophytes: __________
- Debris (twigs/leaves): __________
- Other: __________

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers's (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>Sediment in Grab: Time: __________</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Ponar</td>
<td>Homogenized Sample: Time: __________</td>
</tr>
<tr>
<td>Shovel</td>
<td>Other:</td>
<td>Other: Time: __________</td>
</tr>
</tbody>
</table>

| Sediment (SE) Sample ID:   | Time: __________       |
| Duplicate SE Sample ID:    | __________            |
| Split SE Samples (EPA/NPS/CCT): | __________ |
| Pore Water (PW) Sample ID: | __________           |

Sample Lead Initials MW Date: 10/23/13 Field Supervisor Initials 9/4 Date: 10/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 1-B4  
**Anchor Point (max 3)**  
1  
2  
3  
**Water Depth (feet):** 15.6

**Drop #:**  
1  
2  
3  
**Cast Time:** 1307  
**Sampler Penetration (inches):**  
**Angle (< 5° max):** Yes  
No  
**Cultural Resources Observed?** No  
Yes

**Sample Location:**  
EASTING: 445687.20  
NORTHING: 5420956.37  
(NAD_83_UTM_ZONE_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   YES  
   NO
2. Overlying water present?  
   YES  
   NO
3. Overlying water excessively turbid?  
   YES  
   NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   YES  
   NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   YES  
   NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   YES  
   NO
7. Sample is:  
   Accepted  
   Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled:  
- Accepted  
- Rejected

- **pH of Sediment in Sampler:**  
- **Description:**

**Sediment Characteristics**

- **Type:**  
  - % Silt:  
  - (1/16 mm)  
  - % Sand:  
  - (1/16 - 2 mm)  
  - % Gravel  
  - % Cobbles  
  - % Silica Glass  

- **Color:**  
  - Munsell Color Chart #:  
  - Description:

- **Redox Boundary:**  
  - Present:  
  - Yes  
  - No  

- **Odor:**  
  - None  
  - Hydrogen sulfide  
  - Other:

**Amphipods:**  
**Debris (twigs/leaves):**  
**Tubes:**

**Sample Collected Using**

- Van Veen  
- Eckman  
- Ponar  
- Homogenized Sample  
- Shovel  
- Other:

**Photo Numbers:**

(see Photo Log for descriptions)

- **Sediment (SE) Sample ID:**  
  - Time:  
  - # Containers:  
  - Volume:  

- **Duplicate SE Sample ID:**  
  - Time:  
  - # Containers:  
  - Volume:  

- **Split SE Samples (EP/ANP/CCT):**  
  - Time:  
  - # Containers:  
  - Volume:  

- **Pore Water (PW) Sample ID:**  
  - Time:  
  - # Containers:  
  - Volume: 

**Sample Lead Initials:**  
**Date:**  
**Field Supervisor Initials:** AN  
**Date:** 19/3/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station -B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**URS**
**Sediment/Porewater Sampling Form**

*Upper Columbia River RI/FS*

*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
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<tbody>
<tr>
<td>36310189</td>
<td>1-B4</td>
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<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
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<tbody>
<tr>
<td>1</td>
<td>15-71</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>&lt;1’’</td>
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</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 445 741.17</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater**

Cumulative Percent of Porewater Syringe filled: __ %

pH of Sediment in Sampler: __ su

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silts (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td>100</td>
<td></td>
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</table>

Color: Munsell Color Chart #: Description:

Redox Boundary: Present? Yes No

If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide

Other:

**Amphipods:**

Debris/twigs/leaves: Other:

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Sample in Grab:</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Homogenized Sample:</th>
<th>Other:</th>
</tr>
</thead>
</table>

**Photo Numbers**

(see Photo Log for descriptions)

Sediment (SE) Sample ID: Time: # Containers: Volume: %

Duplicate SE Sample ID: Time: # Containers: Volume: %

Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %

Pore Water (PW) Sample ID: Time: # Containers: Volume: %

<table>
<thead>
<tr>
<th>Sample Lead Initials</th>
<th>Date:</th>
<th>Field Supervisor Initials</th>
<th>Date:</th>
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<tbody>
<tr>
<td>MW</td>
<td>10/23/13</td>
<td>9/24/13</td>
<td></td>
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<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
<td>Photo ID</td>
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<td>-------------</td>
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<tr>
<td>122-0778</td>
<td>12:48</td>
<td>Station ID 1-B4</td>
<td>122-0779</td>
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<tr>
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<td></td>
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<tr>
<td>122-0780</td>
<td>12:50</td>
<td>East Trough, Gravel</td>
<td>122-0781</td>
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<tr>
<td></td>
<td></td>
<td>Bah</td>
<td></td>
</tr>
<tr>
<td>122-0782</td>
<td>12:52</td>
<td>West Shore @ 1-B4</td>
<td>122-0785</td>
</tr>
<tr>
<td>KB</td>
<td></td>
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<td>Rocks/Cobble API Drop 2</td>
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Field Supervisor Initials: KB  Date: 10/23/13
Sample Lead Initials: MW  Date: 10/23/13
# Photo Log

*Upper Columbia River RI/FS*

*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>122-07846</td>
<td>1300</td>
<td>KB</td>
<td></td>
<td>EMPTY GRAB  AP2 DROP 1</td>
<td>122-07847</td>
<td>13082</td>
<td>KB</td>
<td></td>
<td>EMPTY GRAB  AP2 DROP 2</td>
</tr>
<tr>
<td>122-07848</td>
<td>13084</td>
<td>KB</td>
<td></td>
<td>ROCKS IN GRAB  AP2 DROP 3</td>
<td>122-07849</td>
<td>13087</td>
<td>KB</td>
<td></td>
<td>EMPTY GRAB  AP3 DROP 1</td>
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<tr>
<td>122-07940</td>
<td>1309</td>
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<td>AP3 DROP 2</td>
<td>122-07941</td>
<td>13086</td>
<td>KB</td>
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<td>AP3 DROP 3</td>
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</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature]  Date: 10/23/13

Sample Lead Initials: [Signature]  Date: 10/23/13

*URS*
C.R. - cultural resources

Field Supervisor Initials: ON

Date: 10/24/13

Sample Lead Initials: MW

Date: 10/22/13

Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310169
Station Identifier: IB-C2

Date: 10/22/13
Vessel: M22MA

Sampling Crew: WENSE/PAULIN/BACHEMAN
Vessel Crew: TRUDELL/COLLINS/BIBBY

EPA Observer: CAUTHER
C.R. Observer: SQUTIMKIN

Arrival Time: 1025
Departure Time: 1051

River Stage:
Water Surface Elev. (R): __
Water Surface Elevation Source: __

Weather Conditions Upon Arrival
Temp (°F): __
Wind (mph): __
Clouds/Precipitation: __

Site Information:
Boat Position: (Powered) __, (Anchor) __
River Mile: 734

Water Surface: (Calm) __, (Small Waves) __, (Choppy) __
Surface Vegetation Present: Yes __, No __
Was Vegetation Removed: Yes __, No __

Notable shore surface features: (rocks, outcrops, streams, wetlands, oxbows, cut-offs, roads, houses, campsites, construction, etc.)

Northport E east
Hwy 25 Bridge to North
Wooded Banks to east + west

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>IB-0706</td>
<td>1025</td>
<td>PENTAX OPTIO TA-1</td>
</tr>
<tr>
<td>IB-0707</td>
<td>1026</td>
<td>IB-0706</td>
</tr>
</tbody>
</table>

General Notes:
- collected 2 cobbles at anchor point 1
- no other sediment collected at station
- No sample collected.
- will proceed to next reserve for 1-C2 which is location 1B-C3
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

**Project Number:** 36310189

**Station Identifier:** 1B-C2

**Sample Location:**

- **EASTING:** 4424752.9
- **NORTHING:** 5418842.7

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

### Porewater

- **Cumulative Percent of Porewater Syringe filled:** ___% **Accepted** **Rejected**
- **pH of Sediment in Sampler:**

### Sediment Characteristics

- **Type:**
  - % Silt
  - % Sand
  - % Gravel
  - % Cobbles
- **Color:**
  - Munsell Color Chart #:
  - Description:
- **Redox Boundary:**
  - Present? **Yes** **No**
  - If present -- Depth Below Sediment Surface (inches):
- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

### Amphipods:

- **Debris (twigs/leaves):**

### Tubes:

### Macrophytes:

- **Stratified sediment:** **Yes** **No**
- **Sheen Present:** **Yes** **No**
- **Sample Collected Using:**
  - Van Veen
  - Eckman
  - Ponar
  - Shovel
  - Other:
- **Photo Numbers:**
  - (see Photo Log for descriptions)

### Sediment (SE) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Duplicate SE Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Split SE Samples (EPA/NPS/CCT):

- **Time:**
- **# Containers:**
- **Volume:**

### Pore Water (PW) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Sample Lead Initials:** 

**Date:** 10/22/13

**Field Supervisor Initials:** 

**Date:** 10/24/13

---

**Sample ID Format:**

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
Sediment/Porewater Sampling Form

Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: 1B-C2

Anchor Point (max 3) 1 2 3  Water Depth (feet): 32.1
Drop # 1 2 3  Cast Time 10:32  Sampler Penetration (inches): No recovery
Angle (< 5°max) Yes No  Cultural Resources Observed? No Yes

Sample Location: 442 465 441 341 5528.45
[Sample Acceptance Criteria:]

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: _____% Accepted Rejected
pH of Sediment in Sampler: Refer to Description:

Sediment Characteristics

Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass

Color: Munsell Color Chart #: Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide Other:

Amphipods: Debris(twigs/leaves):
Sample Collected Using: Sampled SE Sample ID:
Van Veen Sediment (SE) Sample ID:
Eckman Duplicates SE Sample ID:
Ponar Split SE Samples (EPA/NPS/CCT):
Shovel Other: Photo Numbers 's
(Sediment in Grab:) Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 10/22/13  Field Supervisor Initials: Date: 10/22/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: IB-C2

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time: 1034
Angle (< 5' max) Yes No

Sample Location: (NAD_83_UTM_Zone_11_North)
EASTING: 442 506 42 NORTHING: 54188 14 41

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: su

Sediment Characteristics

Type: % Silt (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobble (2 rocks)
% Silica Glass:

Color Munsell Color Chart #: Description:
Redox Boundary: Yes No

Amphipods: Debris(twigs/leaves):
Tubes: Other:
Macrophytes:
Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Sample Lead Initials: RW
Date: 10/22/13
Field Supervisor Initials: ED
Date: 1/14/13

URS
## Sediment/Porewater Sampling Form
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

### Project Number: 36310189  
Station Identifier: 1B2-C2

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>25.41</td>
<td>1 2 3</td>
<td>1037</td>
<td>No Reoery</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5’max)</th>
<th>No</th>
<th>Cultural Resources Observed?</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

**Sample Location:** (NAD_83_UTM_Zone_11_North)

**EASTING:** 442,473.04  
**NORTING:** 541,882.25

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**  
3. Overlying water excessively turbid? **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
7. Sample is: **Accepted**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: su</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
<th>Other:</th>
</tr>
</thead>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab:</td>
<td>Time:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Photo Numbers:

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume: %</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

### Sample Lead Initials: mv  
Date: 10/22/13  
Field Supervisor Initials: DA  
Date: 19/24/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

#### Project Number: 36310189  
Station Identifier:  

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>(NAD_83_UTM_Zone_11_North)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>Y42459.84</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>57418862.29</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** NO
2. Overlying water present? **YES** NO
3. Overlying water excessively turbid? **YES** NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** NO
5. Desired penetration depth (4 to 6 inches) achieved? **YES** NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** NO
7. Sample is: **Accepted** Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>su</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand (1/16 - 2 mm)</th>
<th>Redox Boundary</th>
<th>Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th></th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

#### Amphipods: Debris/twigs/leaves: Other:

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers ’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td>Time:</td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
<td>Ponar</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Lead Initials MW Date: 10/21/13  
Field Supervisor Initials D Date: 10/21/13

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 13-02

**Anchor Point (max 3)**
1 2 3  
**Water Depth (feet):** 32.3

**Drop #**
1 2 3  
**Cast Time:** 10:41  
**Sampler Penetration (inches):** No recovery

**Angle (< 5°max)**
Yes  
**Cultural Resources Observed?**
No

**Sample Location:**
NAD 83 UTM Zone 11 North
EASTING: 442,445.69  
NORTHING: 341,870.41

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:
   - Accepted
   - Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled:  
**%**

pH of Sediment in Sampler:  
**su**

Description:

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>% Cobbles</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>% Silica Glass</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Other:</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sheen Present: Yes</th>
<th>No</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
</table>

**Sample Lead Initials**: Mv  
**Date:** 10/22/13  
**Field Supervisor Initials**: FA  
**Date:** 10/24/13

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th><strong>Project Number:</strong></th>
<th>36310189</th>
<th><strong>Station Identifier:</strong></th>
<th>1B-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anchor Point (max 3)</strong></td>
<td>1 2 ✔ 3</td>
<td><strong>Water Depth (feet):</strong></td>
<td>32.8</td>
</tr>
<tr>
<td><strong>Drop #</strong></td>
<td>1 2 3</td>
<td><strong>Cast Time:</strong></td>
<td>415</td>
</tr>
<tr>
<td><strong>Angle (&lt; 5° max)</strong></td>
<td>Yes</td>
<td><strong>No</strong></td>
<td>✔</td>
</tr>
<tr>
<td><strong>Sample Location:</strong></td>
<td>NAD 83 UTM Zone_11_North</td>
<td><strong>EASTING:</strong></td>
<td>442440.07</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

#### Porewater
- Cumulative Percent of Porewater Syringe filled: ______% **Accepted**
- pH of Sediment in Sampler: ______ su
- **Description:**

#### Sediment Characteristics
- **Type:**
  - % Silt: ______ (<1/16 mm)
  - % Sand: ______ (1/16 - 2 mm)
  - % Gravel: ______
  - % Cobbles: ______
  - % Silica Glass: ______
- **Color:** Munsell Color Chart #: ______
- **Description:**

#### Amphipods:
- **Debris (twigs/leaves):**
- **Tubes:**
- **Other:**
- **Macrophytes:**

#### Stratified sediment: Yes No
- Van Veen
- Eckman
- Ponar
- Shovel

#### Sheen Present: Yes No
- Sediment in Grab: Time:
- Homogenized Sample: Time:
- Other: Time:

#### Sediment (SE) Sample ID: Time: # Containers: Volume: %
- Duplicate SE Sample ID: Time: # Containers: Volume: %
- Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
- Pore Water (PW) Sample ID: Time: # Containers: Volume: %

---

**Sample Lead Initials:**
**Date:** 10/23/13
**Field Supervisor Initials:**
**Date:** 10/24/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 13-C2

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 10:46
Water Depth (feet): 29.71
Sampler Penetration (inches): No recovery
Sample Location: NAD 83 UTM Zone 11 North
EASTING: 442,452.28
NORTHING: 541,581.26

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected
pH of Sediment in Sampler: su Description:

Sediment Characteristics
Type: % Silt (1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel (2 - 4 mm)
% Cobbles (4 - 8 mm)
% Silica Glass:

Amphipods: None
Debris (twigs/leaves): Other:
Tubes: Other:
Macrophytes: Other:

Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen Eckman Ponar Shovel
Sediment in Grab: Homogenized Sample:

Photo Numbers 's
(see Photo Log for descriptions)

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Field Supervisor Initials:
Date: 6/27/13 Date: 7/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bicassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 41B-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3 Water Depth (feet): 30 2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time 1049</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 442470.96 NORTHING: 5418627.66</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #: Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Present? Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Van Veen</td>
<td></td>
<td>Eckman Sediment in Grab:</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td>Time: Time:</td>
</tr>
<tr>
<td>Shovel</td>
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<td>Other: Time:</td>
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</tbody>
</table>

### Sediment (SE) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Duplicate SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</table>

### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

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Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>121-0701</td>
<td>1001</td>
<td>MW</td>
<td>STATCN IN</td>
<td>IB-C2</td>
</tr>
<tr>
<td>121-0703</td>
<td>1025</td>
<td>MW</td>
<td>EAST</td>
<td>EAST OF IB-C2</td>
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<tr>
<td>121-0702</td>
<td>1025</td>
<td>MW</td>
<td>SOUTH</td>
<td>SOUTH OF IB-C2</td>
</tr>
<tr>
<td>121-0707</td>
<td>1026</td>
<td>MW</td>
<td>WEST</td>
<td>WEST SHORE @ IB-C2</td>
</tr>
<tr>
<td>121-0708</td>
<td>1026</td>
<td>MW</td>
<td>NORTH</td>
<td>NORTH OF IB-C2</td>
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<tr>
<td>121-0709</td>
<td>1030</td>
<td>KB</td>
<td></td>
<td>EMPTY GRAB</td>
</tr>
<tr>
<td>121-0710</td>
<td>1033</td>
<td>KB</td>
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<td>EMPTY GRAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KB</td>
<td></td>
<td>API DROP 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KB</td>
<td></td>
<td>CUBBLES IN GRAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KB</td>
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<td>API DROP 3</td>
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Field Supervisor Initials: OA  Date: 10/24/13

Sample Lead Initials: MW  Date: 10/22/13
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<tr>
<td>121-0712</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>A-P2 Drop 1</td>
</tr>
<tr>
<td>121-0713</td>
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<td></td>
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<td>KB</td>
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<td>EMPTY GRAB</td>
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<tr>
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<td>A-P2 Drop 3</td>
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<td>A-P3 Drop 1</td>
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<td>A-P3 Drop 2</td>
</tr>
<tr>
<td>121-0717</td>
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<td>KB</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>A-P3 Drop 3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature] Date: 10/22/13
Sample Lead Initials: [Signature] Date: 10/21/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/22/13
Sampling Crew: UETTER/NAVIA/HIEB
EPA Observer: E-NAVIA
Arrival Time: 1122
River Stage:
Water Surface Elev. (ft):
Water Surface Elevation Source:

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 735
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No
Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

location just north of bridge. in small embayment on east shore. Water very shallow

Sample Location Photo IDs:
(see Photo Log for descriptions)

Camera ID: Pentax Optio TA-1

Photo ID: 121-0723 Time: 1131
Photo ID: 121-0724 Time: 1131
Photo ID: 121-0725 Time: 1131
Photo ID: 1201-0726 Time:

General Notes:
- Sample just north of bridge.
- Obtained enough sediment for chemistry sample.
- Collected samples from this location - SE-1B-C3 API Drop
- All pore water collected using white ceramic air stone and small syringe.

C.R. - cultural resources
Field Supervisor Initials ON Date: 10/6/13
Sample Lead Initials MV Date: 10/22/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 1B9-23

Anchor Point (max 3) 2 3
Water Depth (feet): 1.0

Drop # 1 2 3 Cast Time 1139
Sampler Penetration (inches): 7.4

EASTING: 443176.26
NORTHING: 5241874.83

Sample Location: NAD_83_UTM_Zone_11_North

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 100%
Porewater pH of Sediment in Sampler: 8.18
Description: clear to slightly brown

Sediment Characteristics

Type: % Silt 5 (<1/16 mm) Color: Munsell Color Chart #: Kry 3/2
% Sand 90 (1/16 - 2 mm) Description: very dark grayish brown
% Gravel
% Cobbles
% Silica Glass: 5

Amphipods: Tubes: Macrophytes:
Debris: Other:

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Sediment (SE) Sample ID: SE-1B9-3 Time: 12:30 # Containers: 5 Volume: 4.10±1.60%
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: PW-1B9-3 Time: 12:16 # Containers: 3 Volume: 100%

Sample Lead Initials MV Date: 10/22/13 Field Supervisor Initials KO Date: 10/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
## Photo Log
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>121-0718</td>
<td>1109</td>
<td>MV</td>
<td></td>
<td>STATION ID</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td>1B-C3</td>
</tr>
<tr>
<td>121-0718</td>
<td>1123</td>
<td>MV</td>
<td></td>
<td>STATION ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>just south of station edge</td>
</tr>
<tr>
<td>121-0720</td>
<td>1123</td>
<td>MV</td>
<td>EAST</td>
<td>EAST of station outside circle</td>
</tr>
<tr>
<td>121-0721</td>
<td>1123</td>
<td>MV</td>
<td>SOUTH</td>
<td>South from South edge of station circle</td>
</tr>
<tr>
<td>121-0722</td>
<td>1123</td>
<td>MV</td>
<td>WEST</td>
<td>WEST from below STATION</td>
</tr>
<tr>
<td>121-0723</td>
<td>1131</td>
<td>MV</td>
<td>SOUTH</td>
<td>South at location</td>
</tr>
<tr>
<td>121-0724</td>
<td>1134</td>
<td>MV</td>
<td>WEST</td>
<td>WEST at STATION</td>
</tr>
<tr>
<td>121-0725</td>
<td>1131</td>
<td>MV</td>
<td>NORTH</td>
<td>North of station</td>
</tr>
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</table>

Field Supervisor Initials: OA  Date: 10/24/13
Sample Lead Initials: MV  Date: 10/22/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>121-0726</td>
<td>11:31</td>
<td>MV</td>
<td>EAST</td>
<td>EAST SHORE AT STATION.</td>
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<tr>
<td>121-0727</td>
<td>11:40</td>
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<td></td>
<td>Sediment in grab API Drop 1</td>
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<tr>
<td>121-0728</td>
<td>11:40</td>
<td>MV</td>
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<td>SEDIMENT IN SCOOP</td>
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<td>121-0729</td>
<td>11:58</td>
<td>MV</td>
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<td>Sediment in tbl</td>
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<td>121-0730</td>
<td>12:05</td>
<td>MV</td>
<td></td>
<td>Collecting core water</td>
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<tr>
<td>121-0731</td>
<td>12:29</td>
<td>MV</td>
<td></td>
<td>Homogenized sample</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

Field Supervisor Initials: MJ Date: 10/20/13
Sample Lead Initials: MV Date: 10/22/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 20310169
Date: 10/23/13
Sampling Crew: VEEDER/ANNICK/BILLMAN
EPA Observer: MARIO LOPEZ
Arrival Time: 0845
Station Identifier: 1B-C4
Vessel: MAZAMPA
Vessel Crew: TRUDEN/Y/COLLINS/BIBAY
C.R. Observer: SUTHERLIN
Departure Time: 0913
River Stage:
Water Surface Elev (ft): 
Water Surface Elevation Source: 
Weather Conditions Upon Arrival:
Temp (°F): 45°
Wind (mph): 5
Clouds/Precipitation: CLOUDY

Site Information:

Boat Position: Powered
(Anchored)
River Mile: 733

River Current:
(Calm) (Swift)
(Eddie) (Calm)
(Ripple) (Choppy)
Water Surface:
(Calm) (Small Waves)
(Choppy)

Boat Traffic: PUMPKIN, DARY

Waves Vegetation Present:
Yes No
Was Vegetation Removed:
Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, corrugations, construction, etc.)

LAZY DAZE RETREAT ON WEST BRIDGE FAR NORTH

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
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<tbody>
<tr>
<td>122-0739</td>
<td>0847</td>
<td>PENTAX OPTIO TA-1</td>
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<td>122-0741</td>
<td>0847</td>
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<tbody>
<tr>
<td>122-0740</td>
<td>0847</td>
</tr>
<tr>
<td>122-0742</td>
<td>0847</td>
</tr>
</tbody>
</table>

General Notes:
Location Mid River Channel just south of Lazy Daze Retreat.
- 9 attempts; no acceptable material collected.
- No Sample
- next station is 1B-R3

C.R. - cultural resources
Field Supervisor Initials: MAN
Date: 10/24/13
Sample Lead Initials: MLL
Date: 1/23/13

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: 1B-C4

Anchor Point (max 3) 1 2 3  Water Depth (feet): 28.7'

Drop # 1 2 3 Cast Time 0549  Sampler Penetration (inches): Indeterminate

Angle (< 5°max) Yes No  Cultural Resources Observed? No Yes

Sample Location:
EASTING: 441612.80 (NAD_83_UTM_Zone_11_North) NORTHING: 5218320.88

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 0 % Accepted Rejected
pH of Sediment in Sampler: ________ su Description: ________

Sediment Characteristics
Type: % Silt 1/16 mm Color: Munsell Color Chart #:
(50% - 30%)
% Sand 1/16 - 2 mm Description:
% Gravel 1/4 - 1/2 in. Redox Boundary Present?
% Cobbles 1 - 2 in. Yes No
% Silica Glass: 1 - cobbles
Odor: None Hydrogen sulfide Other:

Amphipods:  Other: tubes
Debris (twigs/leaves):  Other:

Sample Collected Using Photo Numbers 's
Van Veen  (see Photo Log for descriptions)
Eckman  Sediment in Grab:
Ponar  Time:
Shovel  Homogenized Sample:
Other: Time:

Sample (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials Date: 10/23/13 Field Supervisor Initials Date: 10/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

Upper Columbia River RI/FS

2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
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<td>36310189</td>
<td>1B-04</td>
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<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
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<tr>
<td>1</td>
<td>29.1</td>
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<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
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<tr>
<td>1</td>
<td>05:57</td>
<td>Undetermined/Not required</td>
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<th>Angle (&lt; 5° max)</th>
<th>Cultural Resources Observed?</th>
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<td>Yes</td>
<td>No</td>
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Sample Location: (NAD83_UTM_Zone_11_North)

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<th>EASTING:</th>
<th>NORTHING:</th>
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<tbody>
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<td>441576.07</td>
<td>5241834.05</td>
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Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? 
   - YES 
   - NO

2. Overlying water present? 
   - YES 
   - NO

3. Overlying water excessively turbid? 
   - YES 
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? 
   - YES 
   - NO

5. Desired penetration depth (4 to 6 inches) achieved? 
   - YES 
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? 
   - YES 
   - NO

7. Sample is: 
   - Accepted
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>su</th>
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**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>Color:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (1/16 mm)</td>
<td>Munsell Color Chart #:</td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Present?</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
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**Amphipods:**

Debris (twigs/leaves): 

<table>
<thead>
<tr>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

Stratified sediment: Yes No

Sheen Present: Yes No

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>(see Photo Log for descriptions)</td>
<td></td>
</tr>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Ponor</td>
<td>Other:</td>
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Sediment (SE) Sample ID: 

<table>
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<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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Duplicate SE Sample ID: 

<table>
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<th>Volume:</th>
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</table>

Split SE Samples (EPA/NPS/CCT): 

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<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

Pore Water (PW) Sample ID: 

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</thead>
</table>

Sample Lead Initials: 

Date: 10/3/13

Field Supervisor Initials: 

Date: 10/4/13

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

**URS**
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>363101.89</th>
<th>Station Identifier:</th>
<th>1B-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>30.11</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2</td>
<td>Cast Time</td>
<td>0857</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>441578.71</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td>5418312.55</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___%  
- Accepted  
- Rejected

**Sediment Characteristics**

- Type:  
  - % Silt: ___ (<1/16 mm)  
  - % Sand: ___ (1/16 - 2 mm)  
  - % Gravel: ___  
  - % Cobbles: ___  
  - % Silica Glass: ___

**Amphipods:**

- Debris (twigs/leaves): Other:

**Macrophytes:**

- Tubes:  
- Other:

**Sample Collected Using**

- Stratified sediment: Yes  
- Van Veen  
- Sheen Present: Yes  
- Eckman

- Sediment in Grab:  
- Homogenized Sample:  
- Shovel: Other:

**Photo Numbers 's**

- (see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

**Sample Lead Initials: **  
- Date: 10/23/13  
**Field Supervisor Initials: **  
- Date: 10/24/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1B 04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Drop #</td>
<td>2</td>
<td>3</td>
<td>Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; S°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td><strong>NAD_83_UTM_Zone_11_North</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING:</td>
<td>441590.31</td>
<td>NORTHING:</td>
<td>5416339.62</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
   **NC**
2. Overlying water present? **YES**  
   **NC**
3. Overlying water excessively turbid? **YES**  
   **NC**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
   **NC**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
   **NC**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
   **NC**
7. Sample is: **Accepted**  
   **Rejected**

### Porewater

Cumulative Percent of Porewater Syringe filled: _______%  
Accepted  
Rejected

pH of Sediment in Sampler: _______ su
Description: _______

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silts (0-1/16 mm)</th>
<th>% Sands (1/16 - 2 mm)</th>
<th>% Gravels (&gt;2mm)</th>
<th>% Cobble (2-64mm)</th>
<th>% Silica Glass:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Munsell Color Chart #:</td>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present?</td>
<td>Yes</td>
<td>Ne</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Odor: None  
Hydrogen sulfide  
Other: _______

### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Photo Numbers' (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment/SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Duplicate SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Lead Initials: MW  
Date: 10/23/12  
Field Supervisor Initials: KN  
Date: 10/23/12  

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 18-04

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Water Depth (feet):</th>
<th>33.9'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop # 1</td>
<td>2</td>
<td>3</td>
<td>Cast Time</td>
<td>08:59</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**

- **EASTING:** 441573.85  
- **NORTHING:** 5418368.43  
- **(NAD_83_UTM_Zone_11_North)**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled:  
- Accepted  
- Rejected

**pH of Sediment in Sampler:**  
- Description:

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>&lt;1/16 mm</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**  
- Description:

**Debris (twigs/leaves):**  
- Description:

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Yes</td>
<td>Time:</td>
</tr>
<tr>
<td>No</td>
<td>Konrad</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Yes</td>
<td>Time:</td>
</tr>
<tr>
<td>No</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** MW  
**Field Supervisor Initials:** EC  
**Sample Lead Date:** 10/23/13  
**Field Supervisor Date:** 10/24/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: IB-C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 0 3</td>
<td>Water Depth (feet): 316</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 9902</td>
<td>Sampler Penetration (inches): INDETERMINATE</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 441609 62 [NAD 83 UTM Zone 11 North]</td>
<td>NORTING: 53418353 75</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES No
2. Overlying water present? YES No
3. Overlying water excessively turbid? YES No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES No
5. Desired penetration depth (4 to 6 inches) achieved? YES No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES No
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: _____ su Description:

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #: Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary: Present? Yes No</td>
<td></td>
</tr>
<tr>
<td>% Gravel (1 rock)</td>
<td>If present -- Depth Below</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: | Tubes: | Macrophytes: |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris (twigs/leaves):</td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

Sample Collected Using

| Stratified sediment: Yes No | Sample ID: | Time: |
| Sheen Present: Yes No | Van Veen | Sediment in Grab: | Time: |
| | Eckman | Homogenized Sample: | Time: |
| | Ponor | Other: | Time: |

Sediment SE Sample ID: | Time: | # Containers: | Volume: |
Duplicate SE Sample ID: | Time: | # Containers: | Volume: |
Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: |
Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: |

Sample Lead Initials: RW Date: 1/23/13 Field Supervisor Initials: Date: 1/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1B-04</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1 2 3</th>
<th>Water Depth (feet):</th>
<th>32.91</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>1 2 3 Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09:04</td>
<td>IDETERMINED/NO RESULT</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources Observed?</th>
<th>Yes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>(NAD_83_UTM_Zone_11_North)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>4411630.97</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5418359.47</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>su</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Description:</th>
<th></th>
</tr>
</thead>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None Hydrogen sulfide Other:</th>
</tr>
</thead>
</table>

**Amphipods:**

**Debris (twigs/leaves):**

**Tubes:**

**Macrophytes:**

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Stratified Sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Time:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Homogenized Sample:</th>
<th>Time:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Other:</th>
<th>Time:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

Sample Lead Initials: MN  
Date: 10/23/13  
Field Supervisor Initials: OA  
Date: 1/24/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** IB-04

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>317</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>0907</td>
<td>INDETERMINATE/ADDED RECEIVED</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:**

<table>
<thead>
<tr>
<th>EASTING:</th>
<th>NORTHING:</th>
</tr>
</thead>
<tbody>
<tr>
<td>44158982</td>
<td>54183326</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:**  
**Description:**

#### Sediment Characteristics

- **Type:**
  - % Silt  
  - % Sand  
  - % Gravel  
  - % Cobbles  
  - % Silica Glass

- **Color:**
  - Munsell Color Chart #:

- **Redox Boundary:**
  - Present?  
    - Yes  
    - No

- **Odor:**
  - None  
  - Hydrogen sulfide  
  - Other:

#### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Collected Using

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**
- **Homogenized Sample:**
- **Other:**

**Sediment in Grab:**

<table>
<thead>
<tr>
<th>Sediment SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Sediment SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Sample Lead Initials:** MU  
**Date:** 10/23/13  
**Field Supervisor Initials:**  
**Date:** 9/27/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1B-04</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
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<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>0949</td>
</tr>
<tr>
<td>Angles (&lt; 5° max)</td>
<td>Yes No</td>
<td>Sample Penetration (inches):</td>
<td>Indeterminate No Recipe</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Location:  
EASTING: 441520.18  
NORTHING: 5418309.28  
(NAD_83 UTM Zone 11 North)  
Sample Acceptance Criteria:  
1. Sampler overfilled or sediment pressed against top of sampler?  
   YES NO  
2. Overlying water present?  
   YES NO  
3. Overlying water excessively turbid?  
   YES NO  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   YES NO  
5. Desired penetration depth (4 to 6 inches) achieved?  
   YES NO  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   YES NO  
7. Sample is:  
   Accepted Rejected

Porewater  
Cumulative Percent of Porewater Syringe filled:  
Accepted Rejected

pH of Sediment in Sampler: 
Description: 

Sediment Characteristics  
Type: % Silt (<1/16 mm)  
% Sand (1/16 - 2 mm)  
% gravel  
% Cobble  
% Silica Glass  
Color: Munsell Color Chart #:  
Description:  
Redox Boundary: Present? Yes No  
If present -- Depth Below Sediment Surface (inches):  
Odor: None Hydrogen sulfide Other:

Amphipods:  
Tubes:  
Macrophytes:  
Debris (twigs/leaves): Other:

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
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</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
<td>(seePhoto Log for descriptions)</td>
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<tr>
<td>Eckman</td>
<td>Homogenized Sample:</td>
<td>Time:</td>
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<tr>
<td>Sheen Present: Yes No</td>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: 
Time: 
# Containers: 
Volume: 
%  
Duplicate SE Sample ID:  
Time: 
# Containers: 
Volume: 
%  
Split SE Samples (EPA/NPS/CCT):  
# Containers: 
Volume: 
%  
Pore Water (PW) Sample ID:  
Time: 
# Containers: 
Volume: 
%

Sample Lead Initials: MV  
Date: 4/27/13  
Field Supervisor Initials: OH  
Date: 5/24/13

Sample ID Format: 
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
## Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Orientation</th>
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<tbody>
<tr>
<td>122-0738</td>
<td>0547</td>
<td>MV</td>
<td></td>
<td>18-C4, Station 1D</td>
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<tr>
<td>122-0739</td>
<td>0547</td>
<td>MV</td>
<td>NORTH</td>
<td>North of 18-C4</td>
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<td>122-0740</td>
<td>0547</td>
<td>MV</td>
<td>EAST</td>
<td>East Shore, 18-C4</td>
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<td>122-0741</td>
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<td>MV</td>
<td>SOUTH</td>
<td>South of 18-C4</td>
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<td>MV</td>
<td>WEST</td>
<td>West Shore, 18-C4</td>
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<td>122-0743</td>
<td>0550</td>
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<td>Rock/Cobble in Grab, API Drop 1</td>
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<td>122-0744</td>
<td>0553</td>
<td>KB</td>
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<td>Empty Grab, API Drop 2</td>
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<td>122-0745</td>
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<td>Empty Grab, API Drop 3</td>
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Field Supervisor Initials: QA  Date: 10/24/13
Sample Lead Initials: MW  Date: 10/23/13
### Photo Log
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

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<tr>
<th>Project: 36310189</th>
<th>Station Identifier: IB-C4</th>
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<tbody>
<tr>
<td>Date: 10/23/13</td>
<td>Vessel: MACAHA</td>
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<tr>
<td>Camera Serial #: PENTAX OPTIA-A-1</td>
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<th>Photo ID</th>
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<td>AP3 DROP 1</td>
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<td>122-0747</td>
<td>0900</td>
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<td>122-0748</td>
<td>0903</td>
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<td>COBBLE IN GRAB</td>
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<td>AP3 DROP 2</td>
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<td>122-0751</td>
<td>0911</td>
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</tbody>
</table>

| Field Supervisor Initials: JOA | Date: 10/24/13 |
| Sample Lead Initials: MU | Date: 10/23/13 |
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 1B - R3
Date: 10/23/13
Vessel: MAZAMA
Sampling Crew: BETTER/PANTHRAP/SILMAN
Vessel Crew: TRUSSER/ULLIGAS/BIBBY
EPA Observer: LOPES
C.R. Observer: SQUELMIN
Arrival Time: 0944
Departure Time:
River Stage:
Water Surface Elev. (ft): 
Weather Conditions Upon Arrival
Temp (°F): 50
Wnd (mph): <5
Clouds/Precipitation: CLOUDY

Site Information:

Boat Position: (Powering) (Anchored)
River Mile: 735

Boat Traffic: PUMPKIN, DORY
River Current: (Swift) (Eddy) (Glm) (Ripple)

Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campfires, construction, etc.)

Location on east shore in small cove bayment 50' from bridge support

Sample Location Photo IDs:
(see Photo Log for descriptions)

Photo ID: 127-0753 Time: 0945
Photo ID: 127-0754 Time: 0645
Photo ID: 127-0755 Time: 0945
Photo ID: 127-0756 Time: 0645

General Notes:
- GOOD GRAB ON FIRST DROP
- SIEVED MATERIAL TO REMOVE GRAVEL
- WHITE CERAMIC MAStONE INEFFECTIVE
- COLLECT PORcWATER USING BLUE MAStONE + SMALL SPRINGS

- SAMPLE COLLECTED
  SEDIMENT + POREWATER

- Sieving removed 40% of sample. Remaining material is 50% glass

C.R. - cultural resources
Field Supervisor Initials MA Date 10/24/13
Sample Lead Initials 10  Date 10/23/13

URS
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

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<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>IB-R3</th>
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<td>Anchor Point (max 3)</td>
<td>2 3</td>
<td>Water Depth (feet):</td>
<td>3.5'</td>
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<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>0952</td>
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<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
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<tr>
<td>Sample Location:</td>
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<tr>
<td>EASTING:</td>
<td>443 08975</td>
<td>NORTHING:</td>
<td>3418973 13</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td>NO</td>
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</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td>Rejected</td>
<td></td>
</tr>
</tbody>
</table>

Porewater  
Cumulative Percent of Porewater Syringe filled: 100%  
Accepted | Rejected  
pH of Sediment in Sampler: su  
Description: Blue Masters Used  

Sediment Characteristics  
Type: % Silt | <1/16 mm | 5 |
| % Sand | 1/16 - 2 mm | 55 |
| % Gravel | 40 |
| % Cobbles | 0 |
| % Silica Glass | 50% of sieved sample |

Amphipods:  
Debris (twigs/leaves):  
Other:  

Macrophytes:  
Tubes:  

Sample Collected Using  
Van Veen  
Eckman  
Poron  
Shovel  

Photo Numbers’ s  
(see Photo Log for descriptions)  
Sediment in Grab: 122-0757  
Time: 0954  
Homogenized Sample: 122-0757  
Time: 0756  
Other: 122-0757  
Time: 0756  

Sediment (SE) Sample ID: 55-1B-2  
Time: 0955  
# Containers: 5  
Volume: 4 1/6 1.46%  

Duplicate SE Sample ID: MUDOH  
Time: 0955  
# Containers: 4  
Volume: 100%  

Split SE Samples (EPA/NPS/CCT):  
# Containers:  
Volume:  

Pore Water (PW) Sample ID: PW-1B-2  
Time: 0955  
# Containers: 3  
Volume: 100%  

Sample Lead Initials: MU  
Date: 1/29/13  
Field Supervisor Initials: OK  
Date: 10/24/13  

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SF-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
## Photo Log

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project:</th>
<th>38310189</th>
<th>Station Identifier:</th>
<th>1B-R3</th>
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<tbody>
<tr>
<td>Date:</td>
<td>10/23/13</td>
<td>Vessel:</td>
<td>MAZAMA</td>
</tr>
<tr>
<td>Camera Serial #:</td>
<td>PENTAX OPTIO TA-1</td>
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<tbody>
<tr>
<td>Photo Orientation:</td>
<td></td>
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<td>Description:</td>
<td>STATION ID</td>
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<td>Photo Orientation:</td>
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<td>Description:</td>
<td>EAST SHORE</td>
<td>@ 1B-R3</td>
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<tbody>
<tr>
<td>Photo Orientation:</td>
<td>EAST</td>
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<td>EAST SHORE</td>
<td>@ 1B-R3</td>
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<td>Photo Orientation:</td>
<td>SOUTH</td>
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<td>Photo Orientation:</td>
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<td>WEST SHORE</td>
<td>@ HLY 25 BRIDGE</td>
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<tbody>
<tr>
<td>Photo Orientation:</td>
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<td>SEDIMENT IN SCOOP</td>
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Field Supervisor Initials: [Initials] Date: 10/24/13
Sample Load Initials: [Initials] Date: 10/23/13
<table>
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<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photograph</th>
<th>Time</th>
<th>Description</th>
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<tbody>
<tr>
<td>122-0760</td>
<td>1005</td>
<td>SIEVED MATERIAL</td>
<td>MW</td>
<td>1006</td>
<td>SEDIMENT IN TUB</td>
<td>MW</td>
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<td>122-0761</td>
<td>1006</td>
<td>5 mm + &lt; 5 mm</td>
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<td>1007</td>
<td>PORE WATR COLLECTION</td>
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<td>1010</td>
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<td>MW</td>
<td>1026</td>
<td>HOMOGENIZD</td>
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</tbody>
</table>

Field Supervisor Initials: ___  Date: 10/23/13
Sample Lead Initials: ___  Date: ___
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/23/13
Station Identifier: 13-R4
Vessel: MAZAMMA
Sampling Crew: VETTER/PHILLIPS/A. MAZAMMA
Weather Conditions Upon Arrival
EPA Observer: LOPES
Temp (°F): 50
Departure Time: 1143
C.R. Observer: SWEETWATER
Wind (mph): 5
River Stage:
Clouds/Precipitation: Cloudy
Water Surface Elev. (ft)
Water Surface Elevation Source:

Site Information:
Boat Position: (Powered) (Anchored)
River Mile:
735
River Current: (Swift) (Eddy) (Calm) (Ripple)

Water Surface:
(Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses,
campsites, construction, etc.)
North of bridge on east side of river
Rock outcrop directly north (is an island)
Boat launch to south.

Sample Location Photo IDs:
(see Photo Log for descriptions)

Camera ID: PENTAX OPTIO TA-1

Photo ID: 122-0761 Time: 1110 Photo ID: 122-0765 Time: 1110
Photo ID: 122-0766 Time: 1110 Photo ID: 122-0767 Time: 1110

General Notes:
Collected only gravel & cobbles.
No sediment collected.

No Sample.

C.R. - cultural resources
Field Supervisor Initials MAN Date 10/24/13
Sample Lead Initials MAN Date 10/23/13

URS
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1B-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 66.5'</td>
</tr>
<tr>
<td>Drop # 2 3 Cast Time 1113</td>
<td>Sampler Penetration (inches): Indeterminate</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: 443511 12 NAD_83_UTM_Zone_11_North</td>
<td>57192413.85 NORTHING</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES
2. Overlying water present? YES
3. Overlying water excessively turbid? YES
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES
5. Desired penetration depth (4 to 6 inches) achieved? YES
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES
7. Sample is: Accepted

### Porewater

- Cumulative Percent of Porewater Syringe filled: __%
- Accepted
- Rejected

- pH of Sediment in Sampler: __ su
- Description: __

### Sediment Characteristics

- **Type:**
  - % Silt (<1/16 mm): __
  - % Sand (1/16 - 2 mm): __
  - % Gravel (2 - 7 mm): __
  - % Cobbles (7 - 10 mm): __
  - % Silica Glass: __

- **Color:** Munsell Color Chart: __
- Description: __

- **Redox Boundary:** Present? Yes No
- **Sediment Surface (inches):**

### Amphipods:

- Debris (twigs/leaves): Other:

### Tubes:

- **Sample Collected Using:**
  - Van Veen
  - Eckman
  - Ponar
  - Shovel

### Photo Numbers:

- (see Photo Log for descriptions)

### Sediment (SE) Sample ID: __
- Time: __
- # Containers: __
- Volume: __ %

### Duplicate SE Sample ID: __
- Time: __
- # Containers: __
- Volume: __ %

### Split SE Samples (EPA/NPS/CCT):
- # Containers: __
- Volume: __ %

### Pore Water (PW) Sample ID: __
- Time: __
- # Containers: __
- Volume: __ %

---

**Sample Lead Initials:** AW  
**Date:** 10/3/13  
**Field Supervisor Initials:** 99  
**Date:** 10/24/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1B-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>40.91</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>11/17</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 443525.00</td>
<td>NORTHING: 5419232.58</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___%
- Accepted  
- Rejected

**pH of Sediment in Sampler:**  
--- su  
Description:

**Sediment Characteristics**

- Type:  
  - % Silt: ___ (<1/16 mm)
  - % Sand: ___ (1/16 - 2 mm)
  - % Gravel: ___  
  - % Cobbles: 100  
  - % Silica Glass: ___

- Color: Munsell Color Chart #:
  - Description:

- Redox Boundary: Present?  
  - Yes  
  - No

- Sediment Surface (inches):
  - If present: Depth below

- Odor:  
  - None  
  - Hydrogen sulfide

- Amphipods:  
- Tubes:  
- Macrophytos:

- Debris (twigs/leaves):
- Other:

**Sample Collected Using**

- Stratified sediment: Yes  
- Sheen Present: Yes

- Sample in Grab: Van Veen  
- Homogenized Sample: Ponor  
- Shovel: Other

**Photo Numbers**

- (see Photo Log for descriptions)

- Sediment (SE) Sample ID: ___  
- Time: ___  
- # Containers: ___  
- Volume: ___  
- %

- Duplicate SE Sample ID: ___  
- Time: ___  
- # Containers: ___  
- Volume: ___  
- %

- Split SE Samples (EPA/NFS/CCT): ___  
- Time: ___  
- # Containers: ___  
- Volume: ___  
- %

- Pore Water (PW) Sample ID: ___  
- Time: ___  
- # Containers: ___  
- Volume: ___  
- %

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials:  
Date: 02/28/13  
Field Supervisor Initials:  
Date: 02/28/13
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

2013 Phase 2 Sediment Study

### Project Number:

36310189

### Station Identifier:

IB - EW

### Anchor Point (max 3)

1 2 3

### Water Depth (feet):

46.1

### Drop #

1 2 3

### Cast Time:

1119

### Sampler Penetration (inches):

≤ 3

### Angle (< 5°max)

Yes

### Cultural Resources Observed?

No

### Sample Location:

EASTING: 443 540.69

NORTHING: 5419218.00

(NAD_83_UTM_Zone_11_North)

### Sample Acceptance Criteria:

1. Samplers overfilled or sediment pressed against top of sampler?

   YES

2. Overlying water present?

   YES

3. Overlying water excessively turbid?

   YES

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?

   YES

5. Desired penetration depth (4 to 6 inches) achieved?

   YES

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?

   YES

7. Sample is:

   Accepted

   Rejected

### Porewater

Cumulative Percent of Porewater Syringe filled: 

Accepted

Rejected

pH of Sediment in Sampler: 

Description:

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Pebbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>1/16 mm</td>
<td>1/16 - 2 mm</td>
<td>1/16 - 2 mm</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Color:

Munsell Color Chart #:

Description:

Redox Boundary:

Present?

Yes

No

If present -- Depth Below

Sediment Surface (inches):

Odor:

None

Hydrogen sulfide

Other:

### Amphipods:

Debris (twigs/leaves):

Tubes:

Macrophytes:

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
</tr>
</tbody>
</table>

Sediment in Grab:

Homogenized Sample:

Other:

### Photo Numbers 's

(see Photo Log for descriptions)

### Sediment (SE) Sample ID:

Time:

# Containers:

Volume:

### Duplicate SE Sample ID:

Time:

# Containers:

Volume:

### Split SE Samples (EPA/NPS/CCT):

Time:

# Containers:

Volume:

### Pore Water (PW) Sample ID:

Time:

# Containers:

Volume:

### Sample Lead Initials:

nw

Date: 10/23/13

Field Supervisor Initials:

Date: 10/24/13

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1B - 04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1</td>
<td>Water Depth (feet):</td>
<td>26.81</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time 125</td>
<td>Sampler Penetration (inches):</td>
<td>Indeterminate / No recovery</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 443573.64</td>
<td>NORTING: 5419225.55</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___% **Accepted** **Rejected**
- pH of Sediment in Sampler: ___ su **Description:** __________

### Sediment Characteristics
<table>
<thead>
<tr>
<th>Type</th>
<th>% Slit (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>
- Color: Munsell Color Chart #: __________
- Description: __________
- Redox Boundary: Present? **Yes** **No**
  - If present -- Depth Below Sediment Surface (inches): __________
- Odor: None Hydrogen sulfide
  - Other: __________

### Amphipods:
- Debris (twigs/leaves): __________
- Tubes: __________
- Macrophytes: __________

### Sample Collected Using
- Stratified sediment: Yes **No**
- Van Veen: __________
- Eckman: __________
- Sheen Present: Yes **No**
- Ponor: __________
- Shovel: __________
- Homogenized Sample: __________
- Other: __________

### Photo Numbers 's
- Sediment in Grab: __________
- Time: __________
- # Containers: __________
- Volume: __________ %
- Duplicate SE Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________ %
- Split SE Samples (EPA/NPS/CCT): __________
- Time: __________
- # Containers: __________
- Volume: __________ %
- Pore Water (PW) Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________ %

Sample Lead Initials: __________ Date: 11/23/13
Field Supervisor Initials: __________ Date: 12/07/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
### Sediment/Porewater Sampling Form

#### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>13-R4</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>32.2'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time:</td>
<td>11:27</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>Indeterminate/No Recovery</td>
</tr>
<tr>
<td>Angle (&lt; 5°max):</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?:</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

#### Sample Location:

| EASTING: | 443537.10 |
| NORTHING: | 52419224.21 |

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
- pH of Sediment in Sampler: _____ su
- Description: __________

### Sediment Characteristics

- Type: % Silt (1/16 mm) ___
- % Sand (1/16 - 2 mm) ___
- % Gravel ___
- % Cobbles ___
- % Silica Glass ___

#### Color:
- Munsell Color Chart #: __________
- Description: __________

#### Redox Boundary:
- Present?: Yes No
- If present -- Depth Below Sediment Surface (inches): ___

#### Odor:
- None Hydrogen sulfide
- Other: __________

### Amphipods:
- Debris (twigs/leaves): __________
- Tubes: __________
- Other: __________

### Macrophytes:
- __________

### Sample Collected Using

<table>
<thead>
<tr>
<th>Sample</th>
<th>Van Veen X</th>
<th>Eckman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab:</td>
<td>Homogenized Sample:</td>
<td>Other:</td>
</tr>
<tr>
<td>Time:</td>
<td>Time:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________ %

### Duplicate SE Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________ %

### Split SE Samples (EPA/NPS/CCT): __________
- Time: __________
- # Containers: __________
- Volume: __________ %

### Pore Water (PW) Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________ %

---

Sample Lead Initials: ___ Date: 1/23/13
Field Supervisor Initials: ___ Date: 1/9/11

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310180</td>
<td>1/3-2.4</td>
</tr>
</tbody>
</table>

**Anchor Point (max 3) 1 2 3**  
**Drop # 1 2 3 Cast Time 11:30**  
**Angle (< 5°max) Yes No**  
**Water Depth (feet): 43.2'**  
**Sampler Penetration (inches): 2'**  
**Cultural Resources Observed? No Yes**

**Sample Location:**  
**EASTING: 443533.03**  
**NORTHING: 5419215.76**

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES NO**
2. Overlying water present? **YES NO**
3. Overlying water excessively turbid? **YES NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES NO**
7. Sample is: Accepted Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:** su  
**Description:**

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
</table>

**Redox Boundary:** Present? Yes No  
**If present -- Depth Below Sediment Surface (inches):**

**Odor:** None  
**Other:** Hydrogen sulfide

#### Amphipods:
Debris (twigs/leaves):  
Tubes:  
Macrophytes:

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen X</td>
<td>Sediment in Grab:</td>
<td>Time:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Sediment in Grab:</td>
<td>Time:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Sediment in Grab:</td>
<td>Time:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Sediment in Grab:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

**Other:**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicated SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>B2-Y4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>36.6'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>1134</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

Sample Location:  
EASTING: 443570.29 (NAD_83_UTM_Zone_11_North)  
NORTHING: 5419267.53

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?  
   YES NO
2. Overlying water present?  
   YES NO
3. Overlying water excessively turbid?  
   YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   YES NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   YES NO
7. Sample is:  
   Accepted Rejected

Porewater  
Cumulative Percent of Porewater Syringe filled: ---%  
Accepted Rejected

pH of Sediment in Sampler:  
Description:

Sediment Characteristics  
Type:  
% Silt (<1/16 mm)  
% Sand (1/16 - 2 mm)  
% Gravel  
% Cobbles  
% Silica Glass  
Color:  
Munsell Color Chart #:  
Description:

Redox Boundary:  
Present? Yes No  
If present -- Depth Below Sediment Surface (inches):

Odor:  
None Hydrogen sulfide  
Other:

Amphipods:  
Tubes:  
Debris(wigs/leaves):  
Other:  
Macrophytes:

Sample Collected Using  
Van Veen  
Eckman  
Ponar  
Shovel  
Sediment in Grab:  
Homogenized Sample:  
Other:  

Photo Numbers 's
(see Photo Log for descriptions)

Sediment (SE) Sample ID:  
Time:  
# Containers:  
Volume: %

Duplicate SE Sample ID:  
Time:  
# Containers:  
Volume: %

Split SE Samples (EPA/NPS/CCT):  
Time:  
# Containers:  
Volume: %

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume: %

Sample Lead Initials:  
Date: 12/3/13  
Field Supervisor Initials:  
Date: 10/24/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: B4-32
Anchor Point (max 3) 1 2 3 Water Depth (feet): 37.9
Drop # 1 2 3 Cast Time 11:00 Sampler Penetration (inches): < 3
Angle (< 5° max) Yes No Cultural Resources Observed? No Yes
Sample Location: Easting: 443528 NAD 83 UTM Zone 11 North
NORTING: 32419229.47

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater Cumulative Percent of Porewater Syringe filled: ___%

pH of Sediment in Sampler: __________ su Description: __________

Sediment Characteristics
Type: % Silt _ (<1/16 mm)
% Sand _ (1/16 - 2 mm)
% Gravel _ S0
% Cobble _ S0
% Silica Glass: __________

Color: Munsell Color Chart #: __________
Description: __________

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface inches: __________

Odor: None Hydrogen sulfide
Other: __________

Amphipods: __________
Debris (twigs/leaves): __________
Tubes: __________
Other: __________
Macrophytes: __________

Sample Collected Using
Van Veen  Eckman
Sheen Present: Yes No
Ponar  Homogenized Sample:
Shovel  Other:

Sediment (SE) Sample ID: __________ Time: __________
# Containers: __________ Volume: __________ %
Duplicate SE Sample ID: __________ Time: __________
# Containers: __________ Volume: __________ %
Split SE Samples (EPA/NPS/CCT): __________
# Containers: __________ Volume: __________ %
Pore Water (PW) Sample ID: __________ Time: __________
# Containers: __________ Volume: __________ %

Sample Lead Initials: MV Date: 8/23/13 Field Supervisor Initials: AH Date: 9/4/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 1B- RY

- **Anchor Point (max 3)**: 1 2 3  
- **Water Depth (feet):** 41.6
- **Drop #** 1 2 3  
  - **Cast Time:** 11:42
- **Sampler Penetration (inches):** < 2
- **Angle (< 5°max):** Yes  
- **Cultural Resources Observed?** No

**Sample Location:**  
- **EASTING:** 443541.60  
- **NORTHING:** 5919232.60  
  - **(NAD_83_UTM_Zone_11_North)**

### Sample Acceptance Criteria:

1. **Sampler overfilled or sediment pressed against top of sampler?**  
   - Yes  
   - No
2. **Overlying water present?**  
   - Yes  
   - No
3. **Overlying water excessively turbid?**  
   - Yes  
   - No
4. **Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?**  
   - Yes  
   - No
5. **Desired penetration depth (4 to 6 inches) achieved?**  
   - Yes  
   - No
6. **Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?**  
   - Yes  
   - No
7. **Sample is:**  
   - Accepted
   - Rejected

**Porewater**  
- **Cumulative Percent of Porewater Syringe filled:** %  
- **Accepted**  
- **Rejected**  
- **pH of Sediment in Sampler:** s u  
- **Description:**

### Sediment Characteristics

- **Type:**  
  - % Silt: (1/16 mm)  
  - % Sand: (1/16 - 2 mm)  
  - % Gravel: 100  
  - % Cobble:  
  - % Silica Glass:  
- **Color:** Munsell Color Chart #:  
- **Description:**

- **Redox Boundary:**  
  - **Present?** Yes  
  - **If present -- Depth Below Sediment Surface (inches):**

### Amphipods:
- **Debris/twigs/leaves:**
- **Tubes:**
- **Macrophytes:**

### Sample Collected Using
- **Stratified sediment:** Yes  
  - **Van Veen**
- **Sheen Present:** Yes  
  - **Eckman**
  - **Ponar**
  - **Shovel**
  - **Other:**

### Photo Numbers 's
- (see Photo Log for descriptions)
- **Sediment in Grab:** Time:
- **Homogenized Sample:** Time:
- **Other:** Time:

### Sediment (SE) Sample ID:
- **Time:**
- **# Containers:**
- **Volume:** %

### Duplicate SE Sample ID:
- **Time:**
- **# Containers:**
- **Volume:** %

### Split SE Samples (EPA/NPS/CCT):
- **Time:**
- **# Containers:**
- **Volume:** %

### Pore Water (PW) Sample ID:
- **Time:**
- **# Containers:**
- **Volume:** %

**Sample Lead Initials:** MW  
**Date:** 10/23/13  
**Field Supervisor Initials:** AP  
**Date:** 10/24/13

---

*Sample ID Format:*
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
### Photo Log
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: IB-R4</th>
</tr>
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<tbody>
<tr>
<td>Date: 10/23/13</td>
<td>Vessel: Mazama</td>
</tr>
<tr>
<td>Camera Serial #:  PENTAX C700-TH</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 122-0764</th>
<th>Time: 1110</th>
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<tbody>
<tr>
<td>Photographer: MW</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: North</td>
<td></td>
</tr>
<tr>
<td>Description: North at station IB-R4</td>
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<table>
<thead>
<tr>
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<th>Time: 1110</th>
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</thead>
<tbody>
<tr>
<td>Photographer: MW</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: EAST</td>
<td></td>
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<tr>
<td>Description: EAST OF LOCATION IB-R4</td>
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</table>

<table>
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<th>Time: 1110</th>
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</thead>
<tbody>
<tr>
<td>Photographer: MW</td>
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</tr>
<tr>
<td>Photo Orientation: South</td>
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<tr>
<td>Description: South from station IB-R4</td>
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<tbody>
<tr>
<td>Photographer: MW</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: West</td>
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</tr>
<tr>
<td>Description: West From 1B-R4</td>
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<thead>
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<tbody>
<tr>
<td>Photographer: MW</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
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<tr>
<td>Description: STATION ID IB-R4</td>
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<th>Photo ID: 122-0769</th>
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<tbody>
<tr>
<td>Photographer: KB</td>
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<td>Photo Orientation:</td>
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<tr>
<td>Description: Cobble in grab API DROP 1</td>
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<table>
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<th>Photo ID: 122-0770</th>
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<tr>
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<td>Photo Orientation:</td>
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</tr>
<tr>
<td>Description: Cobble in grab API Drop 2</td>
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<thead>
<tr>
<th>Photo ID: 122-0771</th>
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</thead>
<tbody>
<tr>
<td>Photographer: KB</td>
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<tr>
<td>Photo Orientation: 67000</td>
<td></td>
</tr>
<tr>
<td>Description: Cobble in grab API Drop 3</td>
<td></td>
</tr>
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---

Field Supervisor Initials: AV Date: 04/01/13
Sample Lead Initials: AV Date: 10/23/13

---

URS
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>122-0722</td>
<td>1127</td>
<td>KB</td>
<td>EMPTY GRAB AP2 DROP 1</td>
</tr>
<tr>
<td>122-0773</td>
<td>1129</td>
<td>KB</td>
<td>EMPTY GRAB AP2 DROP 2</td>
</tr>
<tr>
<td>122-0774</td>
<td>1131</td>
<td>KB</td>
<td>COBBLES IN GRAB AP3 DROP 3</td>
</tr>
<tr>
<td>122-0775</td>
<td>1135</td>
<td>KB</td>
<td>EMPTY GRAB AP3 DROP 1</td>
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<tr>
<td>122-0776</td>
<td>1141</td>
<td>KB</td>
<td>GRAVEL/LOBBLES IN GRAB AP3 DROP 2</td>
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<tr>
<td>122-0777</td>
<td>1143</td>
<td>KB</td>
<td>ROCK IN GRAB AP3 DROP 3</td>
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</tbody>
</table>
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/22/13
Station Identifier: I-C

Vessel: MAZAMA
Vessel Crew: TRIBUNE/COINS/PIBBY

EPA Observer: CAUTHIER
C.R. Observer: SQUETIKIN

Arrival Time: 1309
Departure Time:

River Stage:
Water Surface Elev. (ft):
Water Surface Elevation Source:

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 738
River Current: (Swift) (Eddy) (Calm) (Ripple)

Weather Conditions Upon Arrival
Temp (°F):
Wind (mph):
Clouds/Precipitation:

Water Surface:
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

RR track on east shore. Tread west shore cobbles bar. Location is backwater (upstream current)

Sample Location Photo IDs:
(see Photo Log for descriptions)

Camera ID: PENTAX OPTIO TA-1

Photo ID: 121-0733 Time: 13:11
Photo ID: 121-0734 Time: 13:11
Photo ID: 121-0735 Time: 13:11
Photo ID: 121-0736 Time: 13:11

General Notes:
Located at bend in river - large embayment on east side.
- Sampled rejected but collected sediment obtained from AP1 Drop 3, AP3 Drop 2 and AP3 Drop 3.
- Will go to reserve location.

C.R. - cultural resources
Field Supervisor Initials: JH
Date: 10/24/13
Sample Lead Initials: MV
Date: 10/22/13

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Sample Location: [Coordinates provided]

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? 
   - [ ] Accepted
   - [x] Rejected

2. Overlying water present? 
   - [ ] Accepted
   - [x] Rejected

3. Overlying water excessively turbid? 
   - [ ] Accepted
   - [x] Rejected

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? 
   - [ ] Accepted
   - [x] Rejected

5. Desired penetration depth (4 to 6 inches) achieved? 
   - [ ] Accepted
   - [x] Rejected

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? 
   - [ ] Accepted
   - [x] Rejected

7. Sample is: 
   - [ ] Accepted
   - [x] Rejected

Porewater

Cumulative Percent of Porewater Syringe filled: ____ %

pH of Sediment in Sampler: ___ su

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

Color

Munsell Color Chart #:

Description:

Redox Boundary:

Present? Yes No

If present - Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide

Other:

Amphipods:

Debris (twigs/leaves):

Tubes:

Other:

Macrophytes:

Stratified sediment: Yes No

Sheen Present: Yes No

Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ponar</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shovel</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID:

Time:

# Containers:

Volume:

% 

Duplicate SE Sample ID:

Time:

# Containers:

Volume:

% 

Split SE Samples (EPA/NPS/CCT):

Time:

# Containers:

Volume:

% 

Pore Water (PW) Sample ID:

Time:

# Containers:

Volume:

% 

Sample Lead Initials: [Signature]

Date: 10/22/13

Field Supervisor Initials: [Signature]

Date: 1/9/14

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
*Upper Columbia River RI/FS*  
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>22 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>3:19</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

**Sample Location:**

| EASTING: | 8446 825.57 | NORTHING: | 5420470.59 |

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? | Accepted | Rejected
2. Overlying water present? | Accepted | Rejected
3. Overlying water excessively turbid? | Accepted | Rejected
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | Accepted | Rejected
5. Desired penetration depth (4 to 6 inches) achieved? | Accepted | Rejected
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | Accepted | Rejected
7. Sample is: | Accepted | Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>50 7%</th>
<th>% Cobbles</th>
<th>50 7%</th>
<th>% Silica Glass:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td>None</td>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Other:</td>
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**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
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</table>

**Tubes:**

<table>
<thead>
<tr>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
</tr>
</tbody>
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**Sample Collected Using**

<table>
<thead>
<tr>
<th>Sample ID Format:</th>
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<tbody>
<tr>
<td>Van Veen</td>
</tr>
<tr>
<td>Ponar</td>
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**Photo Numbers'**

<table>
<thead>
<tr>
<th>(see Photo Log for descriptions)</th>
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<tr>
<td>Sediment in Grab:</td>
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<tr>
<td>Homogenized Sample:</td>
</tr>
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<td>Other:</td>
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<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
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<tbody>
<tr>
<td># Containers:</td>
<td>Volume: %</td>
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<table>
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<tr>
<th>Duplicate SE Sample ID:</th>
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<tbody>
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<td># Containers:</td>
<td>Volume: %</td>
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<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
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<tbody>
<tr>
<td># Containers:</td>
<td>Volume: %</td>
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<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
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<tr>
<td># Containers:</td>
<td>Volume: %</td>
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**Sample Lead Initials:**

<table>
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<tr>
<th>Date: 11/22/13</th>
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<table>
<thead>
<tr>
<th>Field Supervisor Initials:</th>
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<tbody>
<tr>
<td>Date: 11/24/13</td>
</tr>
</tbody>
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**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189

**Station Identifier:** 1-C1

**Anchor Point (max 3):** 2 3

**Drop #:** 1 2 3  
**Cast Time:** 1325

**Angle (< 5° max):** Yes  
**No:** Yes

**Sample Location:**  
**EASTING:** 444 834 35  
**NORTHING:** 542 048 5 3

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler?  **YES**  
2. Overlying water present?  **YES**  
3. Overlying water excessively turbid?  **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  **YES**
5. Desired penetration depth (4 to 6 inches) achieved?  **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  **YES**
7. Sample is:  Accepted

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___ %  
- Accepted  
- Rejected

- pH of Sediment in Sampler: ___ su

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
<th>Type</th>
<th>Color</th>
<th>Redox Boundary</th>
<th>Odor</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silt (&lt;1/16 mm)</td>
<td>&lt;12%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand (1/16 - 2 mm)</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravel (2 - 4 mm)</td>
<td>50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobbles (4 - 8 mm)</td>
<td>40%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silica Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Amphipods:  
- Debris (twigs/leaves):  
- Tubes:  
- Macrophytes: **CLAM**

<table>
<thead>
<tr>
<th>Stratified sediment</th>
<th>Yes</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
</table>
| Sediment in Grab | 1325 | Time: 1325  
| Homogenized Sample | 1469 | Time: 1469 |
| Other:  
| Sediment (SE) Sample ID: | | # Containers: | Volume: |%
| Duplicate SE Sample ID: | | # Containers: | Volume: |%
| Split SE Samples (EPA/NPS/CCT): | | # Containers: | Volume: |%
| Pore Water (PW) Sample ID: | | # Containers: | Volume: |%

**Sample Lead Initials:** MV  
**Date:** 10/22/13

**Field Supervisor Initials:** AL  
**Date:** 10/24/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Sample Location: Easting: 44683137</th>
<th>Northing: 542049496</th>
</tr>
</thead>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted

### Porewater

- Cumulative Percent of Porewater Syringe filled: 0%

### Sediment Characteristics

- Type: % Silt, % Sand, % Gravel, % Cobble, % Silica Glass
- Color: Munsell Color Chart #: Description:
- Redox Boundary: Present? Yes No
- Odor: None Hydrogen sulfide

### Amphipods

- Debris/algae
- Other: None

### Sample Collected Using

- Stratified sediment: Yes No
- Sheen Present: Yes No

### Photo Numbers’s

- Sediment in Grab: Time: 
- Homogenized Sample: Time: 
- Other: Time: 

### Sediment (SE) Sample ID:

- Time: 
- # Containers: 
- Volume: 

### Duplicate SE Sample ID:

- Time: 
- # Containers: 
- Volume: 

### Split SE Samples (EPA/NPS/CCT):

- Time: 
- # Containers: 
- Volume: 

### Pore Water (PW) Sample ID:

- Time: 
- # Containers: 
- Volume: 

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD 83 UTM Zone 11 North)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING:</td>
<td>4416.569</td>
<td>52</td>
<td>NORTING:</td>
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<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>Yes</td>
<td>No</td>
<td></td>
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<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td>Rejected</td>
<td></td>
</tr>
<tr>
<td>Porewater Cumulative Percent of Porewater Syringe filled:</td>
<td>%</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
<td></td>
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<tr>
<td>Sediment Characteristics Type:</td>
<td></td>
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</tr>
<tr>
<td>% Silt (1/16 mm)</td>
<td></td>
<td>Description:</td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
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<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
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<tr>
<td>Amphipods:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debris (twigs/leaves):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tubes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macrophytes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stratified sediment: Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Collected Using:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sediment in Grab:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Homogenized Sample:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
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<tr>
<td>Sediment (SE) Sample ID:</td>
<td></td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td>Time:</td>
<td></td>
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<tr>
<td>Pore Water (PW) Sample ID:</td>
<td></td>
<td>Time:</td>
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</tr>
<tr>
<td>Sample Lead Initials:</td>
<td></td>
<td>Date: 10/24/13</td>
<td></td>
</tr>
<tr>
<td>Field Supervisor Initials:</td>
<td></td>
<td>Date: 10/24/13</td>
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**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

### Project Number: 36310189

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>24.2</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1358</td>
<td>3</td>
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<table>
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<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
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### Sample Location:

**EASTING:** 446866.67  
**NORTHING:** 5420495.60  
**NAD_83_UTM_Zone_11_North**

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**
2. Overlying water present?  
   - **YES**
3. Overlying water excessively turbid?  
   - **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**
5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**
7. Sample is:  
   - Accepted  
   - Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled: _____%
- **Accepted**  
- **Rejected**

### pH of Sediment in Sampler:

- Description:

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color Munsell Color Chart #</th>
<th>Redox Boundary Present?</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td>100</td>
<td>3 cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>-</td>
<td>-</td>
<td></td>
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</tbody>
</table>

### Amphipods:

- Debris (twigs/leaves):
- Other:

### Macrophytes:

- Stratified sediment: Yes  No
- Sheen Present: Yes  No

### Sample Collected Using

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Photo Numbers’s

(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
<th>Other:</th>
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<tbody>
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<td>Time:</td>
<td>Time:</td>
<td>Time:</td>
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<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th># Containers:</th>
<th>Volume:</th>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Sample Lead Initials: AM  
Date: 8/27/13  
Field Supervisor Initials: JN  
Date: 9/29/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-C1</th>
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<tbody>
<tr>
<td>Water Depth (feet):</td>
<td>23.7'</td>
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<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1 2 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td></td>
</tr>
</tbody>
</table>
| Sampler Penetration (inches): | 23"

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Cultural Resources Observed?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:**

- EASTING: 446822.71
- NORTHING: 5420491.48

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes | No
2. Overlying water present?  
   - Yes | No
3. Overlying water excessively turbid?  
   - Yes | No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes | No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes | No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes | No
7. Sample is:  
   - Accepted | Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __%  
  - Accepted | Rejected
- pH of Sediment in Sampler: __ su

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color</th>
<th>% Sand</th>
<th>Color</th>
<th>% Gravel</th>
<th>Color</th>
<th>% Cobbles</th>
<th>Color</th>
<th>% Silica Glass</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Redox Boundary: Yes | No
- Odor: None | Hydrogen sulfide

**Amphipods:**

- Debris (twigs/leaves):  
- Tubes:  
- Macrophytes:  
- Other:

**Sample Collected Using**

- Stratified sediment: Yes | No
- Sheen Present: Yes | No

- Van Veen  
- Eckman  
- Ponar  
- Shovel  
- Homogenized Sample: Time:
- Other: Time:

**Photo Numbers’ s**

- Sediment (SE) Sample ID:  
- Time:  
- # Containers:  
- Volume: 

- Duplicate SE Sample ID:  
- Time:  
- # Containers:  
- Volume: 

- Split SE Samples (EPA/NPS/CCT):  
- Time:  
- # Containers:  
- Volume: 

- Pore Water (PW) Sample ID:  
- Time:  
- # Containers:  
- Volume: 

**Sample Lead Initials:** AW  
**Date:** 10/2/13  
**Field Supervisor Initials:** EK  
**Date:** 10/24/13

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 230</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1342</td>
<td>Sampler Penetration (inches): 4&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

**Sample Location:** (NAD_83_UTM_Zone_11_North) EASTING: 44682170 NORTHING: 5420474.49

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
</tr>
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</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(%)</td>
<td>Description:</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>% Sand (1/16 - 2 mm)</th>
<th>Redox Boundary: Present? Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Gravel</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Odor: None Hydrogen sulfide Other:</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>MacrophYES:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes No</td>
<td>Van Veen X</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td></td>
<td>Sediment in Grab: 20-00355 Time: 1349</td>
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<tr>
<td></td>
<td></td>
<td>Homogenized Sample: 200-00353 Time: 1456</td>
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<td></td>
<td></td>
<td>Other: Time:</td>
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</table>

**Sediment (SE) Sample ID:** Time: __________ # Containers: ________ Volume: ________ %

**Duplicate SE Sample ID:** Time: __________ # Containers: ________ Volume: ________ %

**Split SE Samples (EPA/NPS/CCT):** Time: __________ # Containers: ________ Volume: ________ %

**Pore Water (PW) Sample ID:** Time: __________ # Containers: ________ Volume: ________ %

**Sample Lead Initials** | **Date:** 1/22/13 | **Field Supervisor Initials** | **Date:** 10/4/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

### Project Number: 36310189  
Station Identifier: 1-C1

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>Water Depth (feet)</td>
<td>24.2</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Cast Time</td>
<td>13:46</td>
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<td>Sampler Penetration (inches)</td>
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<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Sample Location:**  
EASTING: 446824.54  
NORTHING: 54260471.72

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes   - No
2. Overlying water present?  
   - Yes   - No
3. Overlying water excessively turbid?  
   - Yes   - No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes   - No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes   - No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes   - No
7. Sample is:  
   - Accepted   - Rejected

### Porewater

**Cumulative Percent of Porewater Syringe filled:** 0%  
**Description:**

**pH of Sediment in Sampler:**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>5</td>
<td>2.5</td>
<td>6.9</td>
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**Color:** Munsell Color Chart #: 10YR 3/1  
**Description:**

**Redox Boundary:**  
- Present? Yes  
- Depth Below Sediment Surface (inches):

**Odor:** None  
**Silica Glass:**

**Hydrogen sulfide:**

### Amphipods:

- Debris(twig/leaves):
- Tubes:
- Other:

### Macrophytes:

- Stratified sediment: Yes  
- Sheen Present: Yes

### Sample Collected Using

- Van Veen  
- Eckman  
- Ponar  
- Shovel  
- Other:

**Sediment in Grab:**  
 **Homogenized Sample:**

**Sediment (SE) Sample ID:** SE-1-C1  
**Time:** 14:10  
**# Containers:** 5  
**Volume:** 4.166 +50%

**Duplicate SE Sample ID:**

**Split SE Samples (EPA/NPS/CCT):**  
**# Containers:** 1  
**Volume:** 50%

**Pore Water (PW) Sample ID:**

**# Containers:**

### Sample Lead Initials: mw  
**Date:** 02/13  
**Field Supervisor Initials:** TA  
**Date:** 03/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

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**URS**
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Photo ID</th>
<th>Time</th>
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<th>Photographer</th>
<th>Photo Orientation</th>
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<td>1309</td>
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<td>EAST</td>
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<td>North at 1-C1</td>
<td>MV</td>
<td>North</td>
<td>121-0735</td>
<td>1311</td>
<td>West at 1-C1</td>
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<td>WEST</td>
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<td>South at 1-C1</td>
<td>MV</td>
<td>South</td>
<td>121-0737</td>
<td></td>
<td>Cobbles in AP1</td>
<td>KB</td>
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<tr>
<td>121-0738</td>
<td></td>
<td></td>
<td>KB</td>
<td>South</td>
<td></td>
<td></td>
<td>Drop</td>
<td></td>
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</tr>
<tr>
<td></td>
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Switch to GP personal camera.

Field Supervisor Initials: JH  Date: 10/22/13
Sample Lead Initials: MV  Date: 10/22/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Date</th>
<th>Camera Serial #</th>
<th>Description</th>
<th>Time</th>
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<tbody>
<tr>
<td>100-0320</td>
<td>10/22/13</td>
<td>Canon EOS TA+</td>
<td>Sediment from AP1 Drop 3</td>
<td>1323</td>
</tr>
<tr>
<td>100-0321</td>
<td></td>
<td>OLYMPUS  B D750 6439</td>
<td>Gravel + cobbles from AP2 Drop 1</td>
<td>1326</td>
</tr>
<tr>
<td>100-0322</td>
<td></td>
<td></td>
<td>Cobbles from AP2 Drop 2</td>
<td>1337</td>
</tr>
<tr>
<td>100-0323</td>
<td></td>
<td></td>
<td>Cobbles from AP2 Drop 3</td>
<td>1339</td>
</tr>
<tr>
<td>100-0324</td>
<td></td>
<td></td>
<td>Cobbles from AP3 Drop 1</td>
<td>1341</td>
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<tr>
<td>100-0325</td>
<td></td>
<td></td>
<td>Material from AP3 Drop 2</td>
<td>1344</td>
</tr>
<tr>
<td>100-0326</td>
<td></td>
<td></td>
<td>Sediment from AP3 Drop 3</td>
<td>1347</td>
</tr>
<tr>
<td>100-0327</td>
<td></td>
<td></td>
<td>Sieved Material from 1-C1</td>
<td>1400</td>
</tr>
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</table>
# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: I-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera Serial #: BD7506439</td>
<td>Vessel: MAZAMA</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Photo ID: 100-0325 Time: 1402</th>
<th>Photographe: MV</th>
<th>Photo ID: 100-0329 Time: 1403</th>
<th>Photographer: MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description: Inadvertent photo</td>
<td></td>
<td>Description: SEDIMENT IN SCOOP</td>
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<table>
<thead>
<tr>
<th>Photo ID: 100-0330 Time: 1404</th>
<th>Photographer: MV</th>
<th>Photo ID: 121-0738 Time:</th>
<th>Photographer: MKB</th>
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<tbody>
<tr>
<td>Photo Orientation:</td>
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<td>Photo Orientation:</td>
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</tr>
<tr>
<td>Description: Homogenized Sample</td>
<td></td>
<td>Description: Cobble</td>
<td>API Drop 2</td>
</tr>
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</table>

<table>
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<th>Photographer:</th>
<th>Photo ID:</th>
<th>Time:</th>
<th>Photographer:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td>Photo Orientation:</td>
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<td></td>
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</tr>
<tr>
<td>Description:</td>
<td></td>
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</tbody>
</table>

<table>
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<th>Time:</th>
<th>Photographer:</th>
<th>Photo ID:</th>
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<th>Photographer:</th>
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</thead>
<tbody>
<tr>
<td>Photo Orientation:</td>
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<tr>
<td>Description:</td>
<td></td>
<td>Description:</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: OH Date: 10/24/13  
Sample Lead Initials: MV Date: 10/22/13  

**URS**
Sample Location Form
Upper Columbia River RIF/S
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/22/13
Sampling Crew: \(**\) VEITER PANTHO BUNKY\(**\)
EPA Observer: \(**\) G. BUTHER\(**\)
Arrival Time: 0903
River Stage:
Water Surface Elev. (ft): ______________
Water Surface Elevation Source: ______________________

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 789
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Wet Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

large gravel bar to south+ west of station

Sample Location Photo IDs:
(see Photo Log for descriptions)
Photo ID: 121-0685 Title: 0905
Photo ID: 121-0686 Title: 0905
Photo ID: 121-0687 Title: 0905

General Notes:
Station not sampled due to shallow water < 3 feet and large cobble bottom and very swift bottom@ current. Bottom looks like gravel/cobble bar to south.

C.R. - cultural resources

Field Supervisor Initials: \(**\) Date: 10/22/13
Sample Lead Initials: \(**\) Date: 10/22/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>121-0684</td>
<td>0847</td>
<td>STATIONS 10 1-C2</td>
<td>MV</td>
<td>EAST</td>
</tr>
<tr>
<td>121-0685</td>
<td>0905</td>
<td>North of station 1-C2</td>
<td>MV</td>
<td>North</td>
</tr>
<tr>
<td>121-0686</td>
<td>0905</td>
<td>EAST from station 1-C2</td>
<td>MV</td>
<td>EAST</td>
</tr>
<tr>
<td>121-0687</td>
<td>0905</td>
<td>Gravel bar south of station 1-C2</td>
<td>MV</td>
<td>South</td>
</tr>
<tr>
<td>121-0688</td>
<td>0905</td>
<td>Gravel bar + bank west of station 1-C2</td>
<td>MV</td>
<td>West</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: NW  Date: 06/4/13
Sample Lead Initials: NW  Date: 10/22/13
<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10/21/13</td>
<td>Vessel:</td>
<td>MA2A1</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>VEREY, PANTIER, BALSAMO</td>
<td>Vessel Cmb:</td>
<td>TRADEC/COLLINS/BIBBY</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>H-AUTHIER</td>
<td>C.R. Observer:</td>
<td>Speck Timkin</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>1240</td>
<td>Departure Time:</td>
<td>1310</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
<td>Weather Conditions Upon Arrival</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td></td>
<td>Temp (°F): 55.0</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td></td>
<td>Wind (mph): 55</td>
<td></td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
<td>Clouds/Precipitation: CLEAR</td>
<td></td>
</tr>
<tr>
<td>Best Position:</td>
<td>(Powered)</td>
<td>River Current: (Swift), (Eddy), (Current), (Rippled)</td>
<td></td>
</tr>
<tr>
<td>River Mile:</td>
<td>739</td>
<td>Boat Traffic:</td>
<td>Pumping, Dry</td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm), (Small Waves), (Choppy)</td>
<td>Boat Traffic:</td>
<td></td>
</tr>
<tr>
<td>Sidewall Vegetation Present:</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Vegetation Removed:</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Note: shore surface features: (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
<td>Gravel bar to east/SE, gently sloping shore to west, camps on east shore.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td></td>
<td>Camera ID: PENTAX OPTIA 7A-1</td>
<td></td>
</tr>
<tr>
<td>(see Photo Log for descriptions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo ID: 120-0649</td>
<td>Time: 1240</td>
<td>Photo ID: 120-0645</td>
<td>Time: 1240</td>
</tr>
<tr>
<td>Photo ID: 120-0643</td>
<td>Time: 1241</td>
<td>Photo ID: 120-0647</td>
<td>Time: 1241</td>
</tr>
<tr>
<td>General Notes:</td>
<td>Couple of cobbles in one grab. No sediment to collect from that grab.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C.R. - cultural resources
Field Supervisor Initials: DA Date: 10/29/18
Sample Lead Initials: MV Date: 10/21/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: I-C 3

Anchor Point (max 3) 2 3
Water Depth (feet): 37.6
Drop # 1 2 3 Cast Time 1244
Sampler Penetration (inches): No recovery

Sample Location: EASTING: 447758.13 NAD_83_UTM_Zone_11_North  
NORTHING: 5421931.54

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES  NO
2. Overlying water present? YES  NO
3. Overlying water excessively turbid? YES  NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES  NO
5. Desired penetration depth (4 to 6 inches) achieved? YES  NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES  NO
7. Sample is: Accepted  Rejected

Porewater
Cumulative Percent of Porewater Syringe filled:  %

pH of Sediment in Sampler: Description:

Sediment Characteristics

Type: % Silt (<1/16 mm)  
% Sand (1/16 - 2 mm)  
% Gravel  
% Cobble  
% Silica Glass:

Color: Munsell Color Chart #: Description:

Redox Boundary: Present? Yes  No
If present -- Depth Below Sediment Surface (inches):

Odor: None  Hydrogen sulfide
Other:

Amphipods:
Debris (twigs/leaves):

Sample Collected Using

<table>
<thead>
<tr>
<th>Sediment in Grab: Time:</th>
<th>Homogenized Sample: Time:</th>
<th>Other: Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponor:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stratified sediment: Yes  No
Sheen Present: Yes  No

Photo Numbers 's

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID: Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID: Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID: Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: MW
Date: 10/21/13
Field Supervisor Initials: DA
Date: 10/21/13

URS
Project Number: 36310189
Station Identifier: 1-C3
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 12:45
Angle (< 5° max) Yes No
Water Depth (feet): 24.7
Sampler Penetration (inches): No recovery
Cultural Resources Observed? No Yes
Sample Location: (NAD 83 UTM Zone 11 North)
EASTING: 447868.06 NORTING: 5421910.67
Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is:
   - •• 1 Anchor Point (max 3)
   - •• 1 Cast Time
   - •• 1 Station Identifier:
   - •• 1 Water Depth (feet):
   - •• 1 Sampler Penetration (inches):

Porewater
Cumulative Percent of Porewater Syringe filled: %
Description:

pH of Sediment in Sampler: su

Sediment Characteristics
Type: % Silt (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobble
% Silica Glass
Color: Munsell Color Chart #:
Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other: 

Amphipods:
Debris (twigs/leaves):
Tubes:
Macrophytes:

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Stratified sediment: Yes No
Sheep Present: Yes No

Photo Numbers's
Sediment in Grab: Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID: Time:
# Containers: Volume: %
Duplicate SE Sample ID: Time:
# Containers: Volume: %
Split SE Samples (EPA/NPS/CCT):
# Containers: Volume: %
Pore Water (PW) Sample ID: Time:
# Containers: Volume: %

Sample Lead Initials
Date: 1/10/13
Field Supervisor Initials
Date: 1/10/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
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<tbody>
<tr>
<td>Station Identifier:</td>
<td>1- C 3</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>25.6</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Sample Penetration (inches):</td>
<td>No recovery</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>Yes</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
<tr>
<td>Sample ID Format:</td>
<td></td>
</tr>
<tr>
<td>Porewater</td>
<td>Cumulative Percent of Porewater Syringe filled:</td>
</tr>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
</tr>
<tr>
<td>Sediment Characteristics</td>
<td></td>
</tr>
<tr>
<td>Type:</td>
<td>% Silt (&lt;1/16 mm)</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary: Yes</td>
</tr>
<tr>
<td>% Gravel</td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Odor: None</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>Hydrogen sulfide</td>
</tr>
<tr>
<td>Amphipods:</td>
<td>Tubes:</td>
</tr>
<tr>
<td>Debris (twigs/leaves):</td>
<td>Other:</td>
</tr>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Sample Collected Using</td>
<td>Van Veen</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Sample Lead Initials:</td>
<td>Date: 10/29/13</td>
</tr>
</tbody>
</table>
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 1-C3  
**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):** 26.5  
**Sample Location:** (NAD_83_UTM_Zone_11_North)  
**EASTING:** 4478520  
**NORTHING:** 5421904.55

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted Rejected

### Porewater:

- **Cumulative Percent of Porewater Syringe filled:** ___%  
- **pH of Sediment in Sampler:** ___ su  
- **Description:**

### Sediment Characteristics:

- **Type:** % Silt (1/16 mm)  
- % Sand (1/16 - 2 mm)  
- % Gravel  
- % Cobbles  
- % Silica Glass: ___

### Color:

- **Munsell Color Chart #:**
- **Description:**

### Redox Boundary:

- **Present?** Yes No  
- **If present -- Depth Below Sediment Surface (inches):**

### Odor:

- **Present?** Yes No  
- **If present -- Depth Below Sediment Surface (inches):**
  - None
  - Hydrogen sulfide
  - Other: ___

### Amphipods:

- **Debris(twigs/leaves):**

### Tubes:

- **Other:**

### Macrophytes:

- **Stratified sediment:** Yes No
- **Sheen Present:** Yes No

### Sample Collected Using:

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Photo Numbers 's:

(see Photo Log for descriptions)

### Sediment (SE) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Duplicate SE Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Split SE Samples (EPA/NPS/CCT):

- **Time:**
- **# Containers:**
- **Volume:**

### Pore Water (PW) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: __  
Date: __/24/13  
Field Supervisor Initials: __  
Date: __/24/13

**URS**
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 1-C3

- **Anchor Point (max 3):** 1 2 3  
- **Drop #:** 1 2 3  
- **Cast Time:** 12:07  
- **Samplers Penetration (inches):** None recovered

**Sample Location:**  
(EASTING: 447800.86, NAD_83_UTM_Zone_11_North)  
(NORTHING: 542193.703)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**
2. Overlying water present?  
   - **YES**  
   - **NO**
3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**  
   - **NO**
5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**

**Sample is:**  
- **Accepted**  
- **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

- **pH of Sediment in Sampler:**  
  - **Accepted**  
  - **Rejected**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
</table>

- **Redox Boundary:**  
  - **Present:** Yes  
  - **No**
  - **If present -- Depth Below Sediment Surface (inches):**

**Amphipods:**  
- **None**

**Debris (twigs/leaves):**  
- **Other**

**Tubes:**  
- **Other**

**Macrophytes:**  
- **None**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sheen Present:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
<td>Homogenized Sample:</td>
<td>Other:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time:</td>
<td>Time:</td>
<td>Time:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Time:</td>
<td>Time:</td>
<td>Time:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Time:</td>
<td>Time:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

- **Sample Lead Initials:**  
  - **Date:** 1/21/13

- **Field Supervisor Initials:** SHA  
  - **Date:** 1/22/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

**Project Number:** 36310189

---

**Station Identifier:** 1-C3

---

**Anchor Point (max 3):** 1 2 3

**Water Depth (feet):** 29.61

---

**Drop #:** 1 2 3

**Cast Time:** 12:59

**Sampler Penetration (inches):** No recovery

---

**Angle (< 5°max):** Yes

---

**Sample Location:** (NAD 83 UTM Zone 11 North)

**EASTING:** 27447718.96

**NORTHING:** 5421939.20

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO

2. Overlying water present? YES NO

3. Overlying water excessively turbid? YES NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO

5. Desired penetration depth (4 to 6 inches) achieved? YES NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO

7. Sample is: Accepted Rejected

---

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected

---

**pH of Sediment in Sampler:** ___ su

**Description:**

---

**Sediment Characteristics**

**Type:**

- % Silt (≤1/16 mm)

- % Sand (1/16 - 2 mm)

- % Gravel

- % Cobbles

- % Silica Glass:

Color: Munsell Color Chart #:

**Description:**

---

**Redox Boundary:**

- Present? Yes No

- If present -- Depth Below Sediment Surface (inches):

**Odor:**

- None

- Hydrogen sulfide

- Other:

---

**Amphipods:**

**Debris (twigs/leaves):**

**Other:**

---

**Sample Collected Using**

- Van Veen

- Eckman

- Ponar

- Shovel

---

**Photo Numbers 's**

(see Photo Log for descriptions)

---

**Sediment (SE) Sample ID:**

**Time:**

# Containers: _______

Volume: _______

---

**Duplicate SE Sample ID:**

**Time:**

# Containers: _______

Volume: _______

---

**Split SE Samples (EPA/NPS/CCT):**

**Time:**

# Containers: _______

Volume: _______

---

**Pore Water (PW) Sample ID:**

**Time:**

# Containers: _______

Volume: _______

---

**Sample Lead Initials:** MM Date: 10/23/13

**Field Supervisor Initials:** NN Date: 10/24/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** 1-C3

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1302</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt;5' max)</th>
<th>Yes</th>
<th>No</th>
<th>Cultural Resources Observed?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Sample Location:**  
EASTING: 447773.87  
NORTHING: 5421915.67

**Sample Location (NAD 83 UTM Zone 11 North):**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

---

**Porewater**

Cumulative Percent of Porewater Syringe filled: _____%  
Description: __________

**pH of Sediment in Sampler:** _____ su

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

**Color:** Munsell Color Chart:

**Redox Boundary:**

Present? **Yes** **No**
If present -- Depth Below Sediment Surface (inches):

**Odor:** None  
Hydrogen sulfide

**Amphipods:**

Debris (twigs/leaves):

Stratified sediment: **Yes** **No**
Sheen Present: **Yes** **No**

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
</table>

**Photo Numbers:**

Sediment in Grab: Time:  
Homogenized Sample: Time:  
Other: Time:

**Sediment (SE) Sample ID:** Time:  
# Containers:  
Volume:  
%  

duplicate SE Sample ID: Time:  
# Containers:  
Volume:  
%  

**Split SE Samples (EPA/NPS/CCT):**  
# Containers:  
Volume:  
%  

**Pore Water (PW) Sample ID:** Time:  
# Containers:  
Volume:  
%  

---

**Sample Lead Initials:** UW  
**Date:** 11/1/13  
**Field Supervisor Initials:** DH  
**Date:** 11/22/13

---

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189

**Station Identifier:** 1-C3

**Anchor Point (max 3):** 1 2 3

**Drop #:** 1 2 3

**Cast Time:** 13:04

**Sample Penetration (inches):** No recovery

**Angle (< 5° max):** Yes

**Sample Location:**

EASTING: 447802.52

NORTHING: 5421594.41

**Water Depth (feet):** 25.6

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

---

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  
**Accepted**  
**Rejected**

pH of Sediment in Sampler: ___  
Description: ___

---

**Sediment Characteristics**

Type: % Silt ___ (c<1/16 mm)

% Sand ___ (1/16 - 2 mm)

% Gravel ___

% Cobbles ___

% Silica Glass ___

Color: Munsell Color Chart #: ___  
Description: ___

Redox Boundary: Present? **Yes**  
If present -- Depth Below Sediment Surface (inches): ___

Odor: None  
Hydrogen sulfide

Other: ___

---

**Amphipods:**

**Debris(twigs/leaves):**

**Tubes:**

**Macrophytes:**

---

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Collected Using</td>
<td>Van Veen</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
</tr>
</tbody>
</table>

**Photo Numbers 's**

(see Photo Log for descriptions)

Sediment in Grab: ___  
Time: ___

Homogenized Sample: ___  
Time: ___

Other: ___  
Time: ___

---

**Sediment (SE) Sample ID:** ___  
Time: ___  
# Containers: ___  
Volume: ___ %

**Duplicate SE Sample ID:** ___  
Time: ___  
# Containers: ___  
Volume: ___ %

**Split SE Samples (EPA/NPS/CCT):** ___  
Time: ___  
# Containers: ___  
Volume: ___ %

**Pore Water (PW) Sample ID:** ___  
Time: ___  
# Containers: ___  
Volume: ___ %

---

**Sample Lead Initials:** AM  
**Date:** 6/21/13

**Field Supervisor Initials:** OF  
**Date:** 9/22/13

---

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 1-C3
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1400 Sampler Penetration (inches): No recovery
Angle (< 5° max) Yes No Cultural Resources Observed? No Yes
Sample Location: (NAD_83_UTM_Zone_11_North) EASTING: 447772.43 NORTHING: 5421886.41

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled:%

pH of Sediment in Sampler: su Description:

Sediment Characteristics
Type: % Silt (%<1/16 mm)
% Sand (%)1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Color: Munsell Color Chart #:
Description:
Redox Boundary:

Amphipods:
Debris (twigs/leaves):
Tubes:
Other:

Macrophytes:

Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Homogenized Sample:
			

Sediment (SE) Sample ID: Time:
			

# Containers:

Volume:
%

Duplicate SE Sample ID:
Time:

# Containers:

Volume:
%

Split SE Samples (EPA/NPS/CCT):

Pore Water (PW) Sample ID:
Time:

# Containers:

Volume:
%

Sample Lead Initials: Date: 14/3/13
Field Supervisor Initials: Date: 10/3/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Photo Log
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-0643</td>
<td>12:27</td>
<td>MW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120-0644</td>
<td>12:40</td>
<td>MW</td>
<td>NORTH</td>
<td></td>
</tr>
<tr>
<td>120-0645</td>
<td>12:40</td>
<td>MW</td>
<td>EAST</td>
<td>East Shore</td>
</tr>
<tr>
<td>120-0646</td>
<td>12:41</td>
<td>MW</td>
<td>SOUTH</td>
<td></td>
</tr>
<tr>
<td>120-0647</td>
<td>12:41</td>
<td>MW</td>
<td>WEST</td>
<td>West Shore</td>
</tr>
<tr>
<td>120-0648</td>
<td>12:46</td>
<td>KB</td>
<td>API Drop / Empty</td>
<td></td>
</tr>
<tr>
<td>120-0649</td>
<td>12:49</td>
<td>KB</td>
<td>EMPTY GRAB</td>
<td></td>
</tr>
<tr>
<td>120-0650</td>
<td>12:52</td>
<td>KB</td>
<td>API-DROP #3</td>
<td></td>
</tr>
</tbody>
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Field Supervisor Initials: **OH**  Date: **10/21/13**
Sample Lead Initials: **MW**  Date: **10/21/13**
### Photo Log

#### Upper Columbia River RI/FS

2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-0651</td>
<td>1255</td>
<td>KB</td>
<td></td>
<td>Rocks in grab, no sediment to collect AP2 Drop1</td>
<td>120-0652</td>
<td>1255</td>
<td>KB</td>
<td></td>
<td>Empty Grab, AP2 drop 2</td>
</tr>
<tr>
<td>120-0653</td>
<td>1301</td>
<td>KB</td>
<td></td>
<td>Empty Grab, AP2 Drop 3</td>
<td>120-0654</td>
<td>1303</td>
<td>KB</td>
<td></td>
<td>Empty Grab, AP3 Drop 1</td>
</tr>
<tr>
<td>120-0655</td>
<td>1305</td>
<td>KB</td>
<td></td>
<td>Empty Grab, AP3 Drop 2</td>
<td>120-0656</td>
<td>1307</td>
<td>DJ</td>
<td></td>
<td>Empty Grab, AP3 Drop 3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: AM  Date: 10/21/13
Sample Lead Initials: AW  Date: 10/21/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 30310189
Date: 10/21/13
Station Identifier: 1-C4

Sampling Crew: KE上下/MA/MT/SP
EPA Observer: Marilyn Gauthier
Arrival Time: 0944

Vessel: M2-9AN
Vessel Crew: Trenney/Collins/13-11-7
C.R. Observer: Darryl Sorensen

Departure Time: 1015

River Stage:
Water Surface Elev. (ft): __________
Water Surface Elevation Source: __________

Weather Conditions Upon Arrival
Temp (°F): 45°
Wnd (mph): <5
Clouds/Precipitation: low clouds

Site Information:

Boat Position: (Powered) (Anchored)
River Mile: 743

Water Surface: (Calm) (Small Waves) (Choppy)

River Current: (Swift) (Eddie) (Calm) (Ripple)

Boat Traffic: Pumpkin, Dry

Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.

Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID: __________

Photo ID: 120-0622 Time: 0946
Photo ID: 120-0623 Time: 0947

Photo ID: 120-0624 Time: 0947
Photo ID: 120-0625 Time: 0947

General Notes:

Sheep rocky shore

Many attempts, of recovery all attempts.

C.R. - cultural resources

Field Supervisor Initials: M4 Date: 10/20/13
Sample Lead Initials: MV Date: 10/21/13

URS
# Sediment/Porewater Sampling Form
## Upper Columbia River RI/FS
### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>1-Cy</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>22.1'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>949</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>No Recovery</td>
</tr>
<tr>
<td>Angle (&lt;5°max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>EASTING:</td>
<td>453054.18</td>
</tr>
<tr>
<td>NORTING:</td>
<td>5742871.39</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?
   - Yes
   - No
2. Overlying water present?
   - Yes
   - No
3. Overlying water excessively turbid?
   - Yes
   - No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?
   - Yes
   - No
5. Desired penetration depth (4 to 6 inches) achieved?
   - Yes
   - No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?
   - Yes
   - No
7. Sample is:
   - Accepted
   - Rejected

### Porewater

Cumulative Percent of Porewater Syringe filled: 

<table>
<thead>
<tr>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

pH of Sediment in Sampler: 

<table>
<thead>
<tr>
<th>su</th>
</tr>
</thead>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(c&lt;1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color: Munsell Color Chart #:
Description:

Redox Boundary:
Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide Other:

### Amphipods:

<table>
<thead>
<tr>
<th>Debris(wigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers' (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen Eckman</td>
<td>Sediment in Grab: Time:</td>
</tr>
<tr>
<td></td>
<td>Homogenized Sample: Time:</td>
</tr>
<tr>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
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<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
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Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
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<td>Drop #</td>
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<td>0:54</td>
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<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 453060.54</td>
<td>NORTING: 3425705.38</td>
<td></td>
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</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater

| Cumulative Percent of Porewater Syringe filled: | % |
| Accepted | Rejected |
| pH of Sediment in Sampler: | su |
| Description: |

Sediment Characteristics

| Type: | % Silt (<1/16 mm) |
| % Sand (1/16 - 2 mm) |
| % Gravel |
| % Cobbles |
| % Silica Glass |
| Color: Munsell Color Chart #: |
| Description: |
| Redox Boundary: |
| Present? | Yes | No |
| If present -- Depth Below Sediment Surface (inches): |
| Odor: | None | Hydrogen sulfide |
| Other: |

Amphipods: | Tubes: | Macrophytes: |
| Debris (twigs/leaves): | | |
| Sample Collected Using | Photo Numbers 's (see Photo Log for descriptions) |
| Stratified sediment: Yes No | Van Veen | Sediment in Grab: |
| Sheen Present: Yes No | Eckman | Homogenized Sample: |
| | Ponar | Other: |
| | Shovel | |

| Sediment (SE) Sample ID: | Time: | # Containers: | Volume: |
| Duplicate SE Sample ID: | Time: | # Containers: | Volume: |
| Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: |
| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: |

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: AM Date: 1-6-2013 Field Supervisor Initials: ON Date: 9-22-13

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189

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<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet)</th>
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<tr>
<td>2 3</td>
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<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
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</thead>
<tbody>
<tr>
<td>2 3</td>
<td>0958</td>
<td>No recovery</td>
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<table>
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<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:** (NAD_83_UTM_Zone_11_North)

- **EASTING:** 453051.09
- **NORTHING:** 5425721.28

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __% **Accepted** **Rejected**
- pH of Sediment in Sampler: __

**Sediment Characteristics**

- **Type:**
  - % Silt: __
  - % Sand: __
  - % Gravel: __
  - % Cobbles: __
  - % Silica Glass: __

- **Color:**
  - Munsell Color Chart #: __
  - Description: __

- **Redox Boundary:**
  - Present: **Yes** **No**
  - If present: Depth Below Sediment Surface (inches): __

- **Odor:**
  - None: __
  - Hydrogen sulfide: __
  - Other: __

**Amphipods:**

- Debris (twigs/leaves): __
- Tubes: __
- Other: __

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>Time:</td>
</tr>
<tr>
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<table>
<thead>
<tr>
<th>Sheen Present:</th>
<th>Ponor</th>
<th>Homogenized Sample:</th>
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<tbody>
<tr>
<td>Yes</td>
<td></td>
<td>Time:</td>
</tr>
<tr>
<td>No</td>
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<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
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<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
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<th># Containers:</th>
<th>Volume: %</th>
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<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2


Sample Lead Initials: \(\text{M}\\) Date: 10/21/13

Field Supervisor Initials: \(\text{F}\\) Date: 10/22/13
## Sediment/Porewater Sampling Form

Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

### Project Number:
36310189

### Station Identifier:
1-C4

### Anchor Point (max 3):
- 1
- 2
- 3

### Water Depth (feet):
20.5'

### Drop #:
- 1
- 2
- 3

### Cast Time:
1001

### Sampler Penetration (inches):
No recovery

### Cultural Resources Observed?:
No

### Sample Location:
- EASTING: 453044.71 (NAD_83_UTM_Zone_11_North)
- NORTHING: 5428719.39

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: %
- pH of Sediment in Sampler: su

### Sediment Characteristics
- Type: % Silt (% <1/16 mm)
- % Sand (% 1/16 - 2 mm)
- % Gravel
- % Cobble
- % Silica Glass
- Color: Munsell Color Chart #:
- Redox Boundary:
- Odor: None
- Hydrogen sulfide

### Amphipods:
- Debris (twigs/leaves):
- Sample Collected Using:
  - Van Veen
  - Eckman
  - Ponar
  - Shovel
- Photo Numbers 's
  - (see Photo Log for descriptions)

### Stratified sediment:
Yes No

### Sheen Present:
Yes No

### Sediment (SE) Sample ID:
- Time:
- # Containers:
- Volume:
- 

### Duplicate SE Sample ID:
- Time:
- # Containers:
- Volume:
- 

### Split SE Samples (EPA/NPS/CCT):
- Time:
- # Containers:
- Volume:
- 

### Pore Water (PW) Sample ID:
- Time:
- # Containers:
- Volume:
- 

### Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

### Sample Lead Initials:
AV

### Date:
11/24/13

### Field Supervisor Initials:
DA

### Date:
10/22/13

URS
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

| Project Number: | 36310189 |
| Anchor Point (max 3) | 1 | 2 | 3 |
| Drop # | 1 | 2 | 3 |
| Cast Time | 1003 |
| Angle (< 5°/max) | Yes | No |
| Sample Location: | (NAD_83_UTM_Zone_11_North) |
| EASTING: | 453038.04 |
| NORTHING: | 5425719.96 |
| Water Depth (feet): | 20.70 |
| Sampler Penetration (inches): | No recovery |
| Cultural Resources Observed? | No | Yes |

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? | YES | NO |
2. Overlying water present? | YES | NO |
3. Overlying water excessively turbid? | YES | NO |
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | YES | NO |
5. Desired penetration depth (4 to 6 inches) achieved? | NO |
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | NO |
7. Sample is: | Accepted | Rejected |

### Porewater

Cumulative Percent of Porewater Syringe filled: ______% | Accepted | Rejected |

pH of Sediment in Sampler: ______ su | Description: ______ |

### Sediment Characteristics

| Type: | % Silt | (1/16 mm) |
| | % Sand | (1/16 - 2 mm) |
| | % Gravel |
| | % Cobbles |
| | % Silica Glass: |

| Color: | Munsell Color Chart #: |
| Description: |

| Redox Boundary: |
| Present? | Yes | No |
| If present -- Depth Below Sediment Surface (inches): |

| Odor: |
| None | Hydrogen sulfide |
| Other: |

### Amphipods:

Debris(twigs/leaves): | Yes | No |

| Sample Collected Using | Van Veen | Eckman | Ponor | Shovel | Sediment in Grab: | Homogenized Sample: | Other: |
| Photo Numbers: | (see Photo Log for descriptions) |
| Time: |

| Sediment (SE) Sample ID: | Time: | # Containers: | Volume: | % |
| Duplicate SE Sample ID: | Time: | # Containers: | Volume: | % |
| Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: | % |
| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: | % |

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: ______ Date: 10/21/13
Field Supervisor Initials: ______ Date: 10/24/13

URS
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>1-C4</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>20.0</td>
</tr>
<tr>
<td>Drop #</td>
<td>Cast Time</td>
</tr>
<tr>
<td>1 2 3</td>
<td>1006</td>
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<tr>
<td>Sampler Penetration (inches):</td>
<td>No recovery</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
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<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
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<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
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<tr>
<td>EASTING: 453024.75</td>
<td>NORTING: 5425725.17</td>
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</table>

**Sample Location Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___
- pH of Sediment in Sampler: ___

**Sediment Characteristics**

- Color: Munsell Color Chart #:
- Description:
- Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles % Silica Glass

**Amphipods:**
- Debris (twigs/leaves):
- Tubes:
- Other:

**Macrophytes:**
- Stratified sediment: Yes No
- Sheen Present: Yes No

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Eckman</td>
<td>Sediment in Grab: Time:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Homogenized Sample: Time:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Other: Time:</td>
</tr>
</tbody>
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<table>
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<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: _%</th>
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<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: _%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume: _%</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: _%</td>
</tr>
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</table>

Sample Lead Initials: MW  
Date: 10/21/13  
Field Supervisor Initials: DA  
Date: 10/22/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

**Sample Location:**
- **EASTING:** 453642.30
- **NORTHING:** 5425685.18

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**
- **Cumulative Percent of Porewater Syringe filled:**
- **pH of Sediment in Sampler:**

**Sediment Characteristics**
- **Type:**
  - % Silt (%<1/16 mm)
  - % Sand (1/16 - 2 mm)
  - % Gravel
  - % Cobble
  - % Silica Glass
- **Color:**
  - Munsell Color Chart #:
  - Description:
- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches):

**Amphipods:**

**Debris (twigs/leaves):**

**Tubes:**

**Macrophytes:**

**Photo Numbers' s**
- **Sample Collected Using**
  - Van Veen
  - Eckman
  - Ponor
  - Shovel
- **Sediment in Grab:**
- **Homogenized Sample:**
- **Other:**

**Sediment (SE) Sample ID:**
- **Time:**
- **# Containers:**
- **Volume:**

**Duplicate SE Sample ID:**
- **Time:**
- **# Containers:**
- **Volume:**

**Split SE Samples (EPA/NPS/CCT):**
- **Time:**
- **# Containers:**
- **Volume:**

**Pore Water (PW) Sample ID:**
- **Time:**
- **# Containers:**
- **Volume:**

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Project Number: 36310189
Station Identifier: 1-C4
Anchors Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 10/12
Sampler Penetration (inches): 0
Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes
Sample Location: NAD 83 UTM Zone 11 North
Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater Cumulative Percent of Porewater Syringe filled: % Accepted Rejected
pH of Sediment in Sampler: su

Sediment Characteristics
Type: % Silt (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobble
% Silica Glass

Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris (twigs/leaves):
Other:
Sample Collected Using
Sample ID Format:
Van Veen
Eckman
Ponar
Shovel
Sediment in Grab: Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Station Identifier</th>
</tr>
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<tbody>
<tr>
<td>36310189</td>
<td>1-C4</td>
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**Anchor Point (max 3)**

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
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<tr>
<td>1014</td>
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</table>

**Water Depth (feet):** 20.31

**Sample Location:**

<table>
<thead>
<tr>
<th>EASTING</th>
<th>NORTHING</th>
</tr>
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<tbody>
<tr>
<td>45303252</td>
<td>5472571285</td>
</tr>
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</table>

(NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO

**Sample is:**

Accepted Rejected

**Cumulative Percent of Porewater Syringe filled:**

- Accepted
- Rejected

**pH of Sediment in Sampler:**

- Accepted
- Rejected

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Redox Boundary</th>
<th>Odor</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>% Sand</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

- None

- Hydrogen sulfide

**Other:**

- None

**Debris (twigs/leaves):**

- None

**Tubes:**

- None

**Macrophytes:**

- None

**Stratified sediment:**

- Yes

- No

**Sheen Present:**

- Yes

- No

**Sample Collected Using**

- Van Veen
- Eckman
- Ponar
- Ponor
- Shovel

**Photo Numbers ’s**

(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
<th>%</th>
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<tbody>
<tr>
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**Duplicate SE Sample ID:**

<table>
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<tr>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
<th>%</th>
</tr>
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<tbody>
<tr>
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</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample ID Format:

<table>
<thead>
<tr>
<th>Sediment Sample ID Format</th>
<th>Date: 10/22/13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: 

Date: 10/22/13
## Photo Log
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-0620</td>
<td>09:05</td>
<td>Vetter</td>
<td></td>
<td>Station ID</td>
</tr>
<tr>
<td>120-0621</td>
<td>09:09</td>
<td>Vetter</td>
<td></td>
<td>Inclinent 1</td>
</tr>
<tr>
<td>120-0622</td>
<td>09:46</td>
<td>MV</td>
<td>North</td>
<td>North @ 1-C4</td>
</tr>
<tr>
<td>120-0623</td>
<td>09:47</td>
<td>MV</td>
<td>East</td>
<td>East Shore</td>
</tr>
<tr>
<td>120-0624</td>
<td>09:47</td>
<td>MV</td>
<td>South</td>
<td>South @ 1-C4</td>
</tr>
<tr>
<td>120-0625</td>
<td>09:57</td>
<td>MV</td>
<td>West</td>
<td>West Shore</td>
</tr>
<tr>
<td>120-0656</td>
<td>09:57</td>
<td>MV</td>
<td></td>
<td>Empty Grap AP1 Drop 1</td>
</tr>
<tr>
<td>120-0627</td>
<td>10:04</td>
<td>MV</td>
<td></td>
<td>Water Exiting Grap O AP2 Drop 2</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: DA Date: 10/22/13
Sample Lead Initials: MW Date: 10/21/13

---

**Project:** 36310189  
**Station Identifier:** 1-C4  
**Vessel:** MAZAMA
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-0628</td>
<td>10:15</td>
<td>Matt Collins</td>
<td></td>
<td>Empty Grid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A03 Drop 3</td>
</tr>
<tr>
<td>120-0629</td>
<td>10:23</td>
<td>MW</td>
<td></td>
<td>Decom after I-C4</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: A.H.  Date: 10/22/13
Sample Lead Initials: MW  Date: 10/21/13
**Sample Location Form**

*Upper Columbia River RI/FS*

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: L-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/19/13</td>
<td>Vessel: Mazama</td>
</tr>
<tr>
<td>Sampling Crew: Thatch, Suggs, Seger</td>
<td>Vessel Crew: Collins, Trudde, Perry</td>
</tr>
<tr>
<td>EPA Observer: Monica Toml</td>
<td>C.R. Observer: Eric Gorschewiess</td>
</tr>
<tr>
<td>Arrival Time: 1341</td>
<td>Departure Time: 1424</td>
</tr>
<tr>
<td>River Stage:</td>
<td>Weather Conditions Upon Arrival</td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td>Temp (°F): 69</td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td>Wind (mph): Light Breeze</td>
</tr>
<tr>
<td>Site Information:</td>
<td>Cloud/Precipitation: Partly Cloudy</td>
</tr>
<tr>
<td>Boat Position:</td>
<td>River Current: (Swift) (Eddy) (Calm) (Ripple)</td>
</tr>
<tr>
<td>River Mile:</td>
<td>Boat Traffic: Observer</td>
</tr>
<tr>
<td>Water Surface:</td>
<td></td>
</tr>
<tr>
<td>(Calm) (Small Waves) (Choppy) (Ripply)</td>
<td></td>
</tr>
<tr>
<td>Surface Vegetation Present: Yes</td>
<td></td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes (NO)</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(rocks, outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td>Camera ID: Pentax</td>
</tr>
<tr>
<td>(see Photo Log for descriptions)</td>
<td></td>
</tr>
<tr>
<td>Photo ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>Time:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>General Notes:</td>
<td></td>
</tr>
<tr>
<td>After 9 attempts only water was recovered from the location. The current was swift in this location.</td>
<td></td>
</tr>
</tbody>
</table>

C.R. - cultural resources

Field Supervisor Initials: JS Date: 10/30/13

Sample Lead Initials: JS Date: 10/19/15

**URS**
<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>33.2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>7 in.</td>
</tr>
<tr>
<td>Angle (&lt; 5')max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td>EASTING:</td>
<td>453144.0 C0</td>
</tr>
<tr>
<td>NORTING:</td>
<td>5426576.2 B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted Rejected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___%
- pH of Sediment in Sampler: su

### Sediment Characteristics
- **Type:**
  - % Silt: ___ (1/16 mm)
  - % Sand: ___ (1/16 - 2 mm)
  - % Gravel: ___
  - % Cobbles: ___
  - % Silica Glass: ___

- **Color:**
  - Munsell Color Chart #: ___
  - Description: ___

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches): ___

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:
- Debris/leaves:

### Tubes:
- Other:

### Macrophytes:

### Sample Collected Using
- Van Veen
- Eckman
- Ponar
- Shovel

### Photo Numbers' s
(see Photo Log for descriptions)
- Sediment in Grab: ___ Time: ___
- Homogenized Sample: ___ Time: ___
- Other: ___ Time: ___

### Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

### Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

### Split SE Samples (EPA/NPS/CCT): ___ # Containers: ___ Volume: ___ %

### Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: ___ Date: ___
Field Supervisor Initials: ___ Date: ___

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: I-83

Anchor Point (max 3) 2 3
Drop # 2 3 Cast Time: 1350
Angle (< 5° max) Yes No
Water Depth (feet): 335.4
Sampler Penetration (inches): 

Sample Location:
EASTING: 453155.56
NORTHING: 5926537.17

Sample Location: (NAD_83_UTM_Zone_11_North)

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: Accepted Rejected

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

Color: Munsell Color Chart #:
Description:

Redox Boundary: Yes No

If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods: Debris (twigs/leaves):
Tubes: Other:

Macrophytes:

Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
<th>Other</th>
</tr>
</thead>
</table>

Sample in Grab: Time:
Homogenized Sample: Time:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead lnitials: Date: 10/19/13 Field Supervisor Initials: Date: 10/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 1-R3

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>13:53</td>
</tr>
</tbody>
</table>

**Anchor Point (max 3):**  G 2 3  
**Water Depth (feet):** 31.8

**EASTING:** 153183.8  
**NORTHING:** 542656.6

**Sample Location:** (NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overtilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting during retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater**  
Cumulative Percent of Porewater Syringe filled: **%**  
**Description:**

**Sediment Characteristics**

- **Type:**
  - % Silt: (\(<1/16 \text{ mm}\)  
  - % Sand: (1/16 - 2 \text{ mm}\)  
  - % Gravel:  
  - % Cobbles: 
  - % Silica Glass: 

- **Color:** Munsell Color Chart #:  
  - Description:

- **Redox Boundary:**
  - Present? **Yes**  
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:**
  - None  
  - Hydrogen sulfide

- **Amphipods:**
- **Debris (twigs/leaves):**
  - Other:

- **Tubes:**
- **Macrophytes:**

- **Stratified sediment:** Yes  
  - No
- **Sheen Present:** Yes  
  - No

**Sample Collected Using**

- **Van Veen**  
- **Eckman**  
- **Ponar**  
- **Shovel**  

**Photo Numbers'**

- **Sediment in Grab:**  
  - Time:
- **Homogenized Sample:**  
  - Time:
- **Other:**  
  - Time:

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Sample Lead Initials:**  
**Date:** 10/19/13  
**Field Supervisor Initials:**  
**Date:** 10/24/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1-23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 42.0</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: 453205,05</td>
<td>NORTHING: 5417651,34</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present? YES NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid? YES NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved? YES NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is: Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>Porewater Cumulative Percent of Porewater Syringe filled: ______% Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>pH of Sediment in Sampler: _______ su Description: _______</td>
<td></td>
</tr>
<tr>
<td>Sediment Characteristics</td>
<td></td>
</tr>
<tr>
<td>Type: % Silt (1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass</td>
<td></td>
</tr>
<tr>
<td>Color: Munsell Color Chart #:</td>
<td></td>
</tr>
<tr>
<td>Description: _______</td>
<td></td>
</tr>
<tr>
<td>Redox Boundary: Present? Yes No</td>
<td></td>
</tr>
<tr>
<td>If present: Depth Below Sediment Surface (inches): _______</td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
</tr>
<tr>
<td>Amphipods: Tube: Other:</td>
<td></td>
</tr>
<tr>
<td>Debris (twigs/leaves): Other:</td>
<td></td>
</tr>
<tr>
<td>Macrophytes:</td>
<td></td>
</tr>
<tr>
<td>Stratified sediment: Yes No</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td></td>
</tr>
<tr>
<td>Sample Collected Using Van Veen Eckman Ponar Shovel Other:</td>
<td></td>
</tr>
<tr>
<td>Sediment in Grab: Time:</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample: Time:</td>
<td></td>
</tr>
<tr>
<td>Other: Time:</td>
<td></td>
</tr>
<tr>
<td>Sediment (SE) Sample ID: Time: # Containers: Volume: %</td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID: Time: # Containers: Volume: %</td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID: Time: # Containers: Volume: %</td>
<td></td>
</tr>
</tbody>
</table>

Sample Lead Initials: B  Date: 9/19/13  Field Supervisor Initials:  Date: 9/30/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

water
**Sediment/Porewater Sampling Form**
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1-83</th>
</tr>
</thead>
</table>

**Sample Location:**
EASTING: 453162.99 (NAD_83_UTM_Zone_11_North)
NORTHING: 5416563.67

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted

**Porewater**
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected

**pH of Sediment in Sampler:** ___
Description: 

**Sediment Characteristics**
- Type: % Silt (<1/16 mm)
- Color: Munsell Color Chart #: Description:
- % Sand (1/16 - 2 mm)
- % Gravel
- % Cobbles
- % Silica Glass:

**Amphipods:**
- Tubs: Other: 

**Debris (twigs/leaves):**
- Other: 

**Stratified sediment:** Yes No
**Sheen Present:** Yes No

**Sample Collected Using**
- Van Veen
- Eckman
- Ponar
- Shovel

**Photo Number's**
(see Photo Log for descriptions)
- Sediment in Grab: 119-06-146 Time: 1400
- Homogenized Sample: 117-06-147 Time: 1404
- Other: 117-06-147 Time: 1404

**Sediment (SE) Sample ID:** 1 Time: _ # Containers: _ Volume: __ %
**Duplicate SE Sample ID:** 1 Time: _ # Containers: _ Volume: __ %
**Split SE Samples (EPA/NPS/CCT):** 1 Time: _ # Containers: _ Volume: __ %
**Pore Water (PW) Sample ID:** 1 Time: _ # Containers: _ Volume: __ %

**Sample Lead Initials:** 
Date: 1/18/13

**Field Supervisor Initials:** 
Date: 1/18/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>1-R3</td>
</tr>
<tr>
<td>Anchor Point (max 3):</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time:</td>
<td>14:08</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>149</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>2nd</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>45°37′09.56″, 114°37′54.76″</td>
</tr>
<tr>
<td>Cultural Resources Observed?:</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **Yes No**
2. Overlying water present? **Yes No**
3. Overlying water excessively turbid? **Yes No**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **Yes No**
5. Desired penetration depth (4 to 6 inches) achieved? **Yes No**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **Yes No**
7. Sample is: **Accepted Rejected**

#### Porewater

- Cumulative Percent of Porewater Syringe filled: %
- pH of Sediment in Sampler: su
- Description:

#### Sediment Characteristics

- Type: % Silt (<1/16 mm)
- % Sand (1/16 - 2 mm)
- % Gravel
- % Cobbles
- % Silica Glass
- Color: Munsell Color Chart #:
- Description:
- Redox Boundary: Present? Yes No
- If present -- Depth Below Sediment Surface (inches):
- Odor: None Hydrogen sulfide
- Other:

#### Amphipods:
- Debris (twigs/leaves):

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab: 119-0018</th>
<th>Time: 14:09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td>Time:</td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment (SE) Sample ID:
- Time: 
- # Containers: 
- Volume: %

#### Duplicate SE Sample ID:
- Time: 
- # Containers: 
- Volume: %

#### Split SE Samples (EPA/NPS/CCT):
- Time: 
- # Containers: 
- Volume: %

#### Pore Water (PW) Sample ID:
- Time: 
- # Containers: 
- Volume: %

#### Other:

**Sample Lead Initials:** 
**Date:** 10/14/15

**Field Supervisor Initials:** 
**Date:** 10/14/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form
## Upper Columbia River RI/FS
### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>1-25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>38.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1412</td>
<td>Ind</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>(NAD_83_UTM_Zone_11_North)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 453210.094</td>
<td>NORTHING: 5426343.27</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
- 1. Sampler overfilled or sediment pressed against top of sampler? 
- 2. Overlying water present? 
- 3. Overlying water excessively turbid? 
- 4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? 
- 5. Desired penetration depth (4 to 6 inches) achieved? 
- 6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? 
- 7. Sample is: Accepted / Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: __%__

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Sand (1/16-2 mm)</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Present? Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Gravel</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Cobbles</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silica Glass</th>
<th>Odor:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

### Amphipods: **Debris(twigs/leaves):**

<table>
<thead>
<tr>
<th>Amphipods</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Sheen Present:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
</tr>
<tr>
<td>Eckman</td>
</tr>
<tr>
<td>Ponar</td>
</tr>
<tr>
<td>Shovel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers' (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab: 119-0619</td>
</tr>
<tr>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
</tbody>
</table>

Sample Lead Initials: 28 Date: 10/11/13
Field Supervisor Initials: 29 Date: 1/18/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>14:14</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

### Sample Location:

- **EASTING:** 433198.69 E
- **NORTHING:** 5426517.07

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** _NO_
2. Overlying water present? **YES** _NO_
3. Overlying water excessively turbid? **YES** _NO_
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** _NO_
5. Desired penetration depth (4 to 6 inches) achieved? **YES** _NO_
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** _NO_
7. Sample is: **Accepted** _Rejected_

### Porewater

- Cumulative Percent of Porewater Syringe filled: _%__
- **Accepted** _Rejected_
- **pH of Sediment in Sampler:** _su_
- **Description:** 

### Sediment Characteristics

**Type:**  
- % Silt: _%_ (<1/16 mm)
- % Sand: _%_ (1/16 - 2 mm)
- % Gravel: _%
- % Cobbles: _%
- % Silica Glass: _%

**Color:** **Munsell Color Chart #:** Description: 

**Redox Boundary:** Present? **Yes** _No_

**Odor:** None _Hydrogen sulfide_

### Amphipods:

- Debris (twigs/leaves): 
- **Other:** 

### Tubes:

- Other: 

### Macrophytes:

- **Stratified sediment:** Yes _No_
- **Sheen Present:** Yes _No_

### Sample Collected Using

- **Van Veen:**  
- **Eckman:**  
- **Ponar:**  
- **Shovel:**  

**Sediment in Grab:**  
**Homogenized Sample:**  
**Other:**

### Photo Numbers

(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

### Pore Water (PW) Sample ID:

- **Time:** 
- **# Containers:** 
- **Volume:** 

### Sample Lead Initials: _D_ Date: _10/19/13_

### Field Supervisor Initials: _OH_ Date: _10/30/13_

**Sample ID Format:**  
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)  
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)  
- **PW-1-B2:** Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

### Project Number: 36310189

**Anchor Point (max 3)**

<table>
<thead>
<tr>
<th>Drop #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Cast Time</th>
<th>11:25</th>
</tr>
</thead>
</table>

**Angle (< 5°max)**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Cultural Resources Observed?</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

**Sample Location:**

- **EASTING:** 453178.74
- **NORTHING:** 5426551.66
- **(NAD_83_UTM_Zone_11_North)**

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

### Porewater

- **Cumulative Percent of Porewater Syringe filled:**
  - **%**
  - **Accepted**
  - **Rejected**

- **pH of Sediment in Sampler:**
  - **su**
  - **Description:**

### Sediment Characteristics

- **Type:**
  - % Silt: ________________
  - (< 1/16 mm)
  - % Sand: ________________
  - (1/16 - 2 mm)
  - % Gravel: ________________
  - % Cobbles: ________________
  - % Silica Glass: ________________
  - Color: **Munsell Color Chart #:**
  - **Description:**

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

### Amphipods:
- **Debris (twigs/leaves):**
- **Tubes:**
- **Macrophytes:**

### Sample Collected Using

- **Stratified sediment:** Yes No
- **Sheen Present:** Yes No
- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**
- **Other:**

### Photo Numbers (see Photo Log for descriptions)

- **Sediment in Grab:**
  - Time:
  - Homogenized Sample:
    - **Time:**
  - **Volume:**
- **Sediment (SE) Sample ID:**
  - **Time:**
  - **# Containers:**
  - **Volume:**
- **Duplicate SE Sample ID:**
  - **Time:**
  - **# Containers:**
  - **Volume:**
- **Split SE Samples (EPA/NPS/CCT):**
  - **Time:**
  - **# Containers:**
  - **Volume:**
- **Pore Water (PW) Sample ID:**
  - **Time:**
  - **# Containers:**
  - **Volume:**

### Sample Lead Initials:

- **Date:** 01/19/13

### Field Supervisor Initials:

- **Date:** 01/19/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-0612</td>
<td>1323</td>
<td>Sugalski</td>
<td></td>
<td>Steven JD</td>
</tr>
<tr>
<td>19-0613</td>
<td>1342</td>
<td>Sugalski</td>
<td>Left bank, train</td>
<td>left bank train truck</td>
</tr>
<tr>
<td>19-0614</td>
<td>1342</td>
<td>Sugalski</td>
<td></td>
<td>10:06:00</td>
</tr>
<tr>
<td>19-0615</td>
<td>1404</td>
<td>Sugalski</td>
<td></td>
<td>retrieving the sampler</td>
</tr>
<tr>
<td>19-0616</td>
<td>1406</td>
<td>Sugalski</td>
<td></td>
<td>Empty Grub 5</td>
</tr>
<tr>
<td>19-0617</td>
<td>1404</td>
<td>Sugalski</td>
<td></td>
<td>Empty Grub 5</td>
</tr>
<tr>
<td>19-0618</td>
<td>1409</td>
<td>Sugalski</td>
<td></td>
<td>20:45:59</td>
</tr>
<tr>
<td>19-0619</td>
<td>1412</td>
<td>Sugalski</td>
<td></td>
<td>water draining from 2m</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature]  Date: 10/10/13
Sample Lead Initials: [Signature]  Date: 10/10/13

URS
Sample Location Form
Upper Columbia River RIIFS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/21/13

Station Identifier: L-R 1
Vessel: MAZA879

Sampling Crew: VESEY/GRANTIER/BOSSY
Vessel Crew: TEKOS/CLARKS/RIEMANN
EPA Observer: Gauthier
C.R. Observer: Segerling

Arrival Time: 1051
Departure Time: 1132

River Stage:
Water Surface Elev. (ft): [Blank]
Water Surface Elevation Source: [Blank]

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 743

Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes (No)
Wash Vegetation Removed: Yes (No)

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, cutflats, roads, houses, campsites, construction, etc.)

Sleep rocky bank to east, house on bluffs to west, less sleep west shore.

Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID: Artrix 0070 TR-1

Photo ID: 120-0631 E Time: 1051
Photo ID: 120-0632 W Time: 1052

Photo ID: 120-0632 S Time: 1052
Photo ID: 120-0634 W Time: 1053

General Notes:
Current swift. No recovery on any grabs.

C.R. - cultural resources

Field Supervisor Initials: OK Date: 10/22/13
Sample Lead Initials: MW Date: 10/21/13

URS
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>22.4</td>
</tr>
<tr>
<td>Drop #</td>
<td>2 3</td>
<td>Cast Time</td>
<td>8583</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 453044.20</td>
<td>NORTHING: 5925063.05</td>
<td>(NAD 83 UTM Zone 11 North)</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? - YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
- pH of Sediment in Sampler: ___ su Description: __

### Sediment Characteristics
- Type: % Silt $(<1/16 \text{ mm})$ % Sand $(1/16 - 2 \text{ mm})$ % Gravel $(>2 \text{ mm})$
- % Cobbles: ___
- % Silica Glass: ___
- Color: Munsell Color Chart #: ___ Description: __
- Redox Boundary: Present? Yes No
- Odor: None Hydrogen sulfide Other: __

### Amphipods:
- Debris (twigs/leaves): __
- Macrophytes: __

### Tubes:
- Other: __

### Sample Collected Using
- Stratified sediment: Yes No
- Sheen Present: Yes No
- Sample Collected Using: Van Veen Eckman Ponar Shovel
- Sediment in Grab: Homogenized Sample: Other: __
- Time: __
- # Containers: __ Volume: ___ %

### Photo Numbers:
- Sediment (SE) Sample ID: ___ Time: __ # Containers: __ Volume: ___ %
- Duplicate SE Sample ID: ___ Time: __ # Containers: __ Volume: ___ %
- Split SE Samples (EPA/NPS/CCT): ___ # Containers: __ Volume: ___ %
- Pore Water (PW) Sample ID: ___ Time: __ # Containers: __ Volume: ___ %

### Sample Lead Initials: ANH Date: 8/21/13
### Field Supervisor Initials: OR Date: 9/2/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample Location: (NAD_83 UTM_Zone_11_North)</td>
<td></td>
</tr>
<tr>
<td>EASTING:</td>
<td>453028.30</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>542506.30</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? | YES NO
2. Overlying water present? | YES NO
3. Overlying water excessively turbid? | YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | YES NO
5. Desired penetration depth (4 to 6 inches) achieved? | YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | YES NO
7. Sample is: Accepted Rejected

Porewater

- Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected
- pH of Sediment in Sampler: __ su Description: __

Sediment Characteristics

- Type:
  - % Silt: __ (<1/16 mm)
  - % Sand: __ (1/16 - 2 mm)
  - % Gravel: __
  - % Cobbles: __
  - % Silica Glass: __

- Color: Munsell Color Chart #: __
- Description: __
- Redox Boundary: Present? Yes No
  - If present -- Depth Below Sediment Surface (inches): __

Amphipods: Debris(twigs/leaves): Tubes: Other: Macrophytes:

- Stratified sediment: Yes No
- Sheen Present: Yes No

Sample Collected Using

- Van Veen
- Eckman
- Ponor
- Shovel

Photo Numbers 's (see Photo Log for descriptions)

- Sediment in Grab: Time: __
- Homogenized Sample: Time: __
- Other: Time: __

Sediment (SE) Sample ID: __ Time: __ # Containers: __ Volume: __ %

Duplicate SE Sample ID: __ Time: __ # Containers: __ Volume: __ %

Split SE Samples (EPA/NPS/CCT): __ # Containers: __ Volume: __ %

Pore Water (PW) Sample ID: __ Time: __ # Containers: __ Volume: __ %

Sample Lead Initials: __ Date: __/__/13
Field Supervisor Initials: __ Date: __/__/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:**  
**Anchor Point (max 3):**  
**Drop #:**  
**Angle (< 5°max):** Yes  
**Sample Location:**  
**EASTING:**  
**NORTHING:**  
**Water Depth (feet):** 22.4'  
**Sampler Penetration (inches):** No recovery  
**Cultural Resources Observed:** No Yes  

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO  
2. Overlying water present? YES NO  
3. Overlying water excessively turbid? YES NO  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO  
5. Desired penetration depth (4 to 6 inches) achieved? YES NO  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO  
7. Sample is: Accepted Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Description</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Percent of Porewater Syringe filled:</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/16 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Other:</th>
</tr>
</thead>
</table>

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Sampling Device</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td>Time:</td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment (SE) Sample ID: Time: 
- # Containers: 
- Volume: %

#### Duplicate SE Sample ID: Time: 
- # Containers: 
- Volume: %

#### Split SE Samples (EPA/NPS/CCT): Time: 
- # Containers: 
- Volume: %

#### Pore Water (PW) Sample ID: Time: 
- # Containers: 
- Volume: %

#### Sample Lead Initials: 
Date: 10/21/13  
Field Supervisor Initials:  
Date: 10/22/13

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189

**Station Identifier:** 1-24

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Water Depth (feet)</th>
<th>Sampler Penetration (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1 2 3</td>
<td>21.71</td>
<td>No recovery</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Sample Location:**
(1) NAD_83_UTM_Zone_11_North

| EASTING: | 453020.9c | NORTING: | 574250.3945 |

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___% **Accepted** **Rejected**
- pH of Sediment in Sampler: ______ su **Description:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- % Sand (1/16 - 2 mm) **Redox Boundary:**

<table>
<thead>
<tr>
<th>% Gravel</th>
<th>Present? Yes</th>
<th>No</th>
</tr>
</thead>
</table>

- % Cobble **Odor:**

<table>
<thead>
<tr>
<th>% Silica Glass:</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
</table>

**Amphipods:**

- Debris (twigs/leaves): **Other:**

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td></td>
</tr>
<tr>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample ID Format:**
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

**Sample Lead Initials:**

Date: 10/22/13

**Field Supervisor Initials:**

Date: 10/22/13

**URS**
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

### Project Number: 36310189

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Angle (&lt; 5°max)</th>
<th>Sampler Penetration (inches)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Station Identifier: 1-B4

Water Depth (feet): 21.2

### Sample Location:

| EASTING: 453009.71 | NORTTHING: 57425044.69 |

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: Accepted

### Porewater

Cumulative Percent of Porewater Syringe filled: 0%

pH of Sediment in Sampler: -

Description: _

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

Color: Munsell Color Chart #: _

Description: _

Redox Boundary: Present? Yes

If present -- Depth Below Sediment Surface (inches): _

Odor: None

Other: Hydrogen sulfide

### Amphipods:

Debris (twigs/leaves):

### Tubes:

Other:

### Macrophytes:

Stratified sediment: Yes

Sheen Present: Yes

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>Sheen Present: Yes</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Ponor</td>
<td>Shovel</td>
<td>Time:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

### Photo Numbers:

(see Photo Log for descriptions)

### Sediment (SE) Sample ID: Time: # Containers: Volume: %

### Duplicate SE Sample ID: Time: # Containers: Volume: %

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

### Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: _

Date: 10/21/7

Field Supervisor Initials: _

Date: 10/21/8

URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** 1-B4

**Anchor Point (max 3):** 1 2 3  
**EASTING:** 45301291  
**NORTHING:** 542504383

**Sample Location:** (NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**

2. Overlying water present?  
   - **YES**  
   - **NO**

3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**  
   - **NO**

5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___%  
- Accepted  
- Rejected

- pH of Sediment in Sampler:

**Sediment Characteristics**

- **Type:**  
  - % Silt: ___
  - % Sand: ___
  - % Gravel: ___
  - % Cobbles: ___
  - % Silica Glass: ___

- **Color:**  
  - Munsell Color Chart #: ___
  - Description:

- **Redox Boundary:**
  - Present?  
    - Yes  
    - No

- **Odor:**
  - None  
  - Hydrogen sulfide

- **Amphipods:**
  - Debris (twigs/leaves):
  - Other:

- **Sample Collected Using:**
  - Van Veen
  - Eckman
  - Ponar
  - Shovel

- **Photo Numbers**: (see Photo Log for descriptions)
  - Sediment in Grab: ___
  - Homogenized Sample: ___
  - Other: ___

- **Sediment (SE) Sample ID:** ___
  - Time: ___
  - # Containers: ___
  - Volume: ___%  

- **Duplicate SE Sample ID:** ___
  - Time: ___
  - # Containers: ___
  - Volume: ___%

- **Split SE Samples (EPA/NPS/CCT):** ___
  - # Containers: ___
  - Volume: ___%

- **Pore Water (PW) Sample ID:** ___
  - Time: ___
  - # Containers: ___
  - Volume: ___%

**Sample Lead Initials:** MM  
**Date:** 10/22/13  
**Field Supervisor Initials:** DD  
**Date:** 10/22/13

---

Sample ID Format:

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>1-R4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>20.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>11:22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Cultural Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No recovery</td>
</tr>
</tbody>
</table>

**Sample Location:**

<table>
<thead>
<tr>
<th>EASTING:</th>
<th>NORTING:</th>
</tr>
</thead>
<tbody>
<tr>
<td>453018.25</td>
<td>5425055.08</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Description:</th>
</tr>
</thead>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>% Silt (1/16 mm)</th>
<th>(1/16 - 2 mm)</th>
<th>(1/16 - 2 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Odor:</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>None</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Sheen Present:</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponor</th>
<th>Shovel</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Time:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

**Sample Lead Initials:**  
**Date:** 10/21/13  
**Field Supervisor Initials:**  
**Date:** 10/22/13

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Project Number: 36310189

Station Identifier: 1-R4

Water Depth (feet): 22.1

Sampler Penetration (inches): No recovery

Cultural Resources Observed? No Yes

Sample Location: (NAD_83_UTM_Zone_11_North)
EASTING: 453022.17
NORTHING: 54255019.70

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected

pH of Sediment in Sampler: Accepted Rejected

Sediment Characteristics
Type: % Silt (1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass

Color: Munsell Color Chart #: Accepted Rejected

Redox Boundary: Present? Yes No

If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide

Other:

Amphipods: Debris (twigs/leaves):

Tubes: Other:

Macrophytes:

Stratified sediment: Yes No

Sheen Present: Yes No

Sample Collected Using
Van Veen Eckman PONAR Shovel

Sediment in Grab: Time:

Homogenized Sample: Time:

Other: Time:

Photo Numbers: (see Photo Log for descriptions)

Sediment (SE) Sample ID: Time: # Containers: Volume: %

Duplicate SE Sample ID: Time: # Containers: Volume: %

Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %

Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 12/21/13

Field Supervisor Initials: Date: 1/22/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

- **Project Number:** 36310189  
- **Station Identifier:** 1-R4  
- **Anchor Point (max 3):** 1, 2, 3  
- **Water Depth (feet):** 20.6  
- **Drop #:** 1, 2, 3  
- **Cast Time:** 11:28  
- **Sampler Penetration (inches):** No recovery  
- **Angle (< 5° max):** Yes, No  
- **Cultural Resources Observed:** No, Yes  
- **Sample Location:**  
  - **WGS 84 Zone:** NAD_83_UTM_ZONE_11_North  
  - **EASTING:** 453,041.42  
  - **NORTHING:** 54,250,645.55  

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Accepted: Yes  
   - Rejected: No
2. Overlying water present?  
   - Accepted: Yes  
   - Rejected: No
3. Overlying water excessively turbid?  
   - Accepted: Yes  
   - Rejected: No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Accepted: Yes  
   - Rejected: No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Accepted: Yes  
   - Rejected: No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Accepted: Yes  
   - Rejected: No
7. Sample is:  
   - Accepted
   - Rejected

### Porewater

- **Cumulative Percent of Porewater Syringe filled:**  
  - Accepted  
  - Rejected
- **pH of Sediment in Sampler:**  
  - Accepted  
  - Rejected

### Sediment Characteristics

- **Type:**  
  - % Silt: (1/16 mm)  
  - % Sand: (1/16 - 2 mm)  
  - % Gravel  
  - % Cobbles  
  - % Silica Glass:
- **Color:**  
  - Munsell Color Chart 
  - Description:
- **Redox Boundary:**  
  - Present? Yes  
  - Depth Below Sediment Surface (inches):
- **Odor:**  
  - None  
  - Hydrogen sulfide

### Amphipods:

- **Debris (twigs/leaves):**  
- **Tubes:**
- **Other:**
- **Macrophytes:**

### Photo Numbers 's

- **Sediment in Grab:**  
  - Time:
- **Homogenized Sample:**  
  - Time:
- **Other:**  
  - Time:

### Sediment (SE) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**
- **%**

### Duplicate SE Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**
- **%**

### Split SE Samples (EPA/NPS/CCT):

- **Time:**
- **# Containers:**
- **Volume:**
- **%**

### Pore Water (PW) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**
- **%**

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:**  
**Date:** 1/1/13  
**Field Supervisor Initials:**  
**Date:** 1/1/13

---

**URS**
# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
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<td>WATER/EMPTY (GRA)</td>
<td>A-P1 - DROP 2</td>
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<td>WATER IN GRA</td>
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**Project:** 36310189  
**Date:** 12/21/13  
**Camera Serial #:** PONTRY OPTIO TAI  
**Station Identifier:** 1-R4  
**Vessel:** MAZAMA  

**Field Supervisor Initials:** DN  
**Date:** 12/21/13  
**Sample Lead Initials:** MW  
**Date:** 12/21/13  

**URS**
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<td>Date: 10/21/13</td>
<td>Vessel: MAZAMA</td>
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| Camera Serial #: PENTAX OPTIO TA-1 |

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<td>AP2 DROP2</td>
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<td>AP3 DROP3</td>
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<table>
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<td>Description:</td>
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</table>

Field Supervisor Initials: CDA Date: 10/22/13
Sample Lead Initials: MW Date: 10/26/13

URS
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/22/13
Sampling Crew: FISHER/FANTHER/BURRELL
EPA Observer: TAYLOR/GOLLIN/BIBBY
Arrival Time: 1437
River Stage:
Weather Conditions Upon Arrival
Temp (°F): 55
Wind (mph): 5
Clouds/Precipitation: CLEAR

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 744
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

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<tr>
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<tbody>
<tr>
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<tr>
<td>Photo ID: 100-0038</td>
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</tbody>
</table>

General Notes:
Grab 1 is good grab.
SAMPLE COLLECTED API DROP

C.R. - cultural resources
Field Supervisor Initials: 11/13
Sample Lead Initials: 10/22/13
Project Number: 36310189

Anchor Point (max 3)  0 2 3 Water Depth (feet): 99'

Drop #   1 2 3 Cast Time 1504

Angie (< 5' max) Yes No Cultural Resources Observed? No Yes

Sample Location: EASTING: 453605.67 NORTHING: 5127595.85

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 100% Accepted Rejected

pH of Sediment in Sampler:

Sediment Characteristics
Type: % Silt <1 (<1/16 mm) Description:
% Sand 50 (1/16 - 2 mm) Redox Boundary: Present? Yes No
% Gravel Odor: None
% Cobbles Other: Hydrogen sulfide
% Silica Glass: 50

Amphipods: Tubes: Macrophytes:

Debris(twig/leaves):

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Sediment (SE) Sample ID: SE-1-105 Time: 1539 # Containers: 4 Volume: 100%
Dupe SE Sample ID: Time: # Containers: Volume: 
Split SE Samples (EPA/NPS/CCT): SE-1-105 # Containers: 1 Volume: 80%
Pore Water (PW) Sample ID: PW-1-105 Time: 1529 # Containers: 3 Volume: 100%

Sample Lead lnitials: Date: 10/22/13 Field Supervisor Initials: Date: 1/9/14/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bicassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
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Field Supervisor Initials: MW  Date: 10/22/13
Sample Lead Initials: MW  Date: 10/22/13
Sample Location Form
Upper Columbia River RIFS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/18/13
Sampling Crew:
EPA Observer:
Arrival Time: 1141

Station Identifier: I-R6
Vessel: McZumy
Vessel Crew: Gillis, Frable, Reay
C.R. Observer: Greer, Cowher-Chaze
Departure Time: 1230

River Stage:
Water Surface Elev. (ft):
Water Surface Elevation Source:

Weather Conditions Upon Arrival
Temp (°F): 45
Wind (mph): Light breeze
Clouds/Previpitation: Fog

Site Information:
Boat Position: (Powered) (Anchored)
River Mile:

Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes
Was Vegetation Removed: Yes

Notable shore surface features:
(natural, human-made, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

Photo ID: Photo ID: Time:

Photo ID: Photo ID: Time:

General Notes:
Curves was Swift and station was just to the
left of Center Channel. The boat drifted with
the current until the line slackened and then
the grab was closed. No sample collected.

C.R. - cultural resources

Field Supervisor Initials: 04 Date: 10/06/13
Sample Lead Initials: 23 Date: 10/18/13

URS
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** I-RC

**Anchor Point (max 3):** 2 3  
**Water Depth (feet):** 92.6

**Drop #:** 1 2 3  
**Cast Time:** 1145

**Angle (< 5°max):** Yes No  
**Sampler Penetration (inches):** 5

**Cultural Resources Observed?** No Yes

**Sample Location:** (NAD_83_UTM_Zone_11_North)  
**EASTING:** 450999.14  
**NORTHING:** 5423768.58

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes No

2. Overlying water present?  
   - Yes No

3. Overlying water excessively turbid?  
   - Yes No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes No

7. Sample is:  
   - Accepted Rejected

### Porewater

- **Cumulative Percent of Porewater Syringe filled:** %
- **pH of Sediment in Sampler:**

### Sediment Characteristics

- **Type:**
  - % Silt (1/16 mm)
  - % Sand (1/16 - 2 mm)
  - % Gravel
  - % Cobbleles
  - % Silica Glass

- **Color:** Munsell Color Chart #:
- **Description:**

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below:

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

### Amphipods:

- **Debris (twigs/leaves):**
- **Tubes:**
- **Macrophytes:**

### Sample Collected Using

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Photo Numbers' (see Photo Log for descriptions)

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<th>Sediment (SE) Sample ID</th>
<th>Time</th>
<th># Containers</th>
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### Sample Lead Initials: ZF  
**Date:** 6/19/15  
**Field Supervisor Initials:** DA  
**Date:** 9/29/15

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

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<td>Anchor Point (max 3)</td>
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<td>Water Depth (feet):</td>
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<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>15'</td>
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<td>Sampler Penetration (inches):</td>
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<tr>
<td>Angle (&lt; 5°max)</td>
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<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
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**Sample Location:**
- **EASTING:** 451037.24 NAD_83_UTM_Zone_11_North
- **NORTHING:** 542375.34

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted

**Porewater**
- Cumulative Percent of Porewater Syringe filled: __% Accepted
- pH of Sediment in Sampler: __

**Sediment Characteristics**
- **Type:**
  - % Silt: __ <1/16 mm
  - % Sand: __ 1/16 - 2 mm
  - % Gravel: __
  - % Cobbles: __
  - % Silica Glass: __
- **Color:** Munsell Color Chart #: __
- **Redox Boundary:**
  - Present?: Yes
  - Depth Below Sediment Surface (inches): __
- **Odor:** None
  - Other: Hydrogen sulfide

**Amphipods:** __
**Tubes:** __
**Macrophytes:** __

**Stratified sediment:**
- Yes
- No

**Sheen Present:**
- Yes
- No

**Sample Collected Using**
- Van Veen
- Eckman
- Ponar
- Homogenized Sample
- Other

**Photo Numbers'**
(see Photo Log for descriptions)

**Sediment (SE) Sample ID:** __
**Time:** __
**# Containers:** __
**Volume:** __

**Duplicate SE Sample ID:** __
**Time:** __
**# Containers:** __
**Volume:** __

**Split SE Samples (EPA/NPS/CCT):**
**Time:** __
**# Containers:** __
**Volume:** __

**Pore Water (PW) Sample ID:** __
**Time:** __
**# Containers:** __
**Volume:** __

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:** __
**Date:** 10/30/13

**Field Supervisor Initials:** __
**Date:** 10/30/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

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<tbody>
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<td>Anchor Point (max 3)</td>
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<tr>
<td>Drop #</td>
<td>1 2 3</td>
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<tr>
<td>Cast Time</td>
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<td>Angle (&lt; 5° max)</td>
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<td>Sample Location:</td>
<td>EASTING: 150790.09, NORTHING: 5423741.73</td>
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<tr>
<td>Water Depth (feet):</td>
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<td>Sampler Penetration (inches):</td>
<td>2.5</td>
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<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
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Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
Odor: None Hydrogen sulfide

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles % Silica Glass:
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
Odor: None Hydrogen sulfide

Amphipods:
Debris (twigs/leaves):
Tubes:
Macrophytes:
Stratified sediment: Yes No
Sheen Present: Yes No
Sample Collected Using:
Van Veen
Eckman
Ponar
Shovel
Photo Numbers’ s
Sediment in Grab: Time: 
Homogenized Sample: Time: 
Other: Time: 

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CGT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: Date: 10/16/13
Field Supervisor Initials: Date: 10/6/13

URS
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-86</th>
</tr>
</thead>
</table>

### Sample Location:
- **EASTING:** 451028.09 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 5473739.453

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

### Sediment Characteristics
- **Type:**
  - % Silt: (1/16 mm)
  - % Sand: (1/16 - 2 mm)
  - % Gravel:
  - % Cobbles: 100
  - % Silica Glass:

- **Odor:** None
- **Other:** Hydrogen sulfide

### Amphipods:
- Debris (twigs/leaves):
- Tubes:
- Macrophytes:

### Stratified sediment: **Yes**
- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Sediment (SE) Sample ID:
- Time:
- # Containers:
- Volume:

### Duplicate SE Sample ID:
- Time:
- # Containers:
- Volume:

### Split SE Samples (EPA/NPS/CGT):
- Time:
- # Containers:
- Volume:

### Pore Water (PW) Sample ID:
- Time:
- # Containers:
- Volume:

### Sample Lead Initials:
- Date: 10/19/15

### Field Supervisor Initials:
- Date: 10/29/15

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

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*ou cable*
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

### Porewater
- Cumulative Percent of Porewater Syringe filled: __%__
- pH of Sediment in Sampler: _______ su
- Description: __________

### Sediment Characteristics
- Type: % Silt (<1/16 mm) __________
- % Sand (1/16 - 2 mm) __________
- % Gravel __________
- % Cobbles __________
- % Silica Glass __________
- Color: Munsell Color Chart #: __________
- Description: __________
- Redox Boundary: Present? Yes | No
- If present -- Depth Below Sediment Surface (inches): __________
- Odor: None | Hydrogen sulfide
- Other: __________

### Amphipods:
- Debris (twigs/leaves): __________
- Tubes: __________
- Macrophytes: __________

### Stratified sediment: Yes | No
- Sheen Present: Yes | No
- Sample Collected Using:
  - Van Veen
  - Eckman
  - Ponar
  - Shovel

### Sediment (SE) Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________

### Duplicate SE Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________

### Split SE Samples (EPA/NPS/CCT):
- # Containers: __________
- Volume: __________

### Pore Water (PW) Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-RG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>47.4</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>12:11</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 451047.82</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td>NORTHING: 3423761.59</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   **YES**  
   **NO**

2. Overlying water present?  
   **YES**  
   **NO**

3. Overlying water excessively turbid?  
   **YES**  
   **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   **YES**  
   **NO**

5. Desired penetration depth (4 to 6 inches) achieved?  
   **YES**  
   **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)?  
   **YES**  
   **NO**

7. Sample is:  
   Accepted  
   Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled:  
<table>
<thead>
<tr>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

- pH of Sediment in Sampler:  
<table>
<thead>
<tr>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**Sediment Characteristics**

- Type:  
  - % Silt:  
  - % Sand:  
  - % Gravel:  
  - % Cobbles:  
  - % Silica Glass:  
- Color:  
  - Munsell Color Chart #:  
  - Description:  
- Redox Boundary:  
  - Present?:  
  - Depth Below Sediment Surface (inches):  
- Odor:  
  - None  
  - Hydrogen sulfide

**Amphipods:**

- Debris (twigs/leaves):  
- Tubes:  
- Other:  
- Macrophytes:  

**Sample Collected Using**

- Stratified sediment:  
  - Yes  
  - No  
- Sheen Present:  
  - Yes  
  - No  

**Photo Numbers 's**

- Sediment in Grab:  
  - Time:  
  - Other:  
- Homogenized Sample:  
  - Time:  
- Other:  

**Sediment (SE) Sample ID:**

- Time:  
- # Containers:  
- Volume:  
- %

**Duplicate SE Sample ID:**

- Time:  
- # Containers:  
- Volume:  
- %

**Split SE Samples (EPA/NPS/CCT):**

- Time:  
- # Containers:  
- Volume:  
- %

**Pore Water (PW) Sample ID:**

- Time:  
- # Containers:  
- Volume:  
- %

Sample Lead Initials:  
Date: 8/17/13  
Field Supervisor Initials:  
Date: 10/03/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater

- Cumulative Percent of Porewater Syringe filled: __%__
- pH of Sediment in Sampler: __su__

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&lt;1/16 mm)</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Color: __Munsell Color Chart #:__
- Description: __
- Redox Boundary: __Present?__
- If present -- Depth Below Sediment Surface (inches): __
- Odor: __None__
- Hydrogen sulfide
- Other: __

### Amphipods:

- Tubes: __
- Macrophytes: __

### Debris (twigs/leaves):

- Stratified sediment: **Yes**
- Sheen Present: **Yes**

### Sample Collected Using

- Van Veen
- Eckman
- Ponar
- Shovel

### Sediment in Grab:

- Time: __12:17__

### Homogenized Sample:

- Time: __12:17__

### Split SE Samples (EPA/NPS/CCT):

- # Containers: __
- Volume: __%

### Pore Water (PW) Sample ID:

- Time: __

---

Sample Lead Initials: __

Date: __10/17/19__

Field Supervisor Initials: __

Date: __10/30/19__

---

Sample ID Format:

- **SE-1-C2**: Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2**: Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2**: Pore Water at Station 1-B2

---

2 cobbles
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:**  
**Anchor Point (max 3):** 1 2 3  
**Drop #:** 1 2 3  
**Cast Time:** 12:21  
**Sampler Penetration (inches):**  
**Angle (< 5°max):** Yes No  
**Cultural Resources Observed?** No Yes  
**Sample Location:**  
**EASTING:** 450971.78  
**NORTHING:** 5423760.63  
**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO  
2. Overlying water present?  
   - YES  
   - NO  
3. Overlying water excessively turbid?  
   - YES  
   - NO  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO  
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO  
7. Sample is:  
   - Accepted  
   - Rejected  

---

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  
**pH of Sediment in Sampler:** su  
**Description:**

---

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

**Color:** Munsell Color Chart #:  
**Description:**

**Redox Boundary:** Present?  
- Yes  
- No  
**If present -- Depth Below Sediment Surface (inches):**

**Odor:** None  
- Hydrogen sulfide

---

**Amphipods:**  
**Debris (twigs/leaves):**  
**Other:**  
**Tubes:**  
**Macrophytes:**

---

**Sample Collected Using**

- Van Veen  
- Eckman  
- Ponar  
- Shovel  

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sheen Present: Yes No</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other:</th>
</tr>
</thead>
</table>

**Photo Numbers’ s**

- (see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
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<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

---

**Sample Lead Initials:**  
**Date:** 1/22/15  
**Field Supervisor Initials:**  
**Date:** 1/22/15

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-26</th>
</tr>
</thead>
</table>

- **Anchor Point (max 3)**: 1 2 3
- **Drop #**: 1 2 3
- **Time (Cast Time)**: 12:36
- **Water Depth (feet)**: 34
- **Sampler Penetration (inches)**: Ind
- **Angle (< 5° max)**: Yes No
- **Cultural Resources Observed?**: No Yes

### Sample Location:

- **EASTING**: 451041.00
- **NORTHING**: 5123740.93

#### Sample Acceptance Criteria:

1. **Sampler overfilled or sediment pressed against top of sampler?**
   - Yes No
2. **Overlying water present?**
   - Yes No
3. **Overlying water excessively turbid?**
   - Yes No
4. **Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?**
   - Yes No
5. **Desired penetration depth (4 to 6 inches) achieved?**
   - Yes No
6. **Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?**
   - Yes No
7. **Sample is:**
   - Accepted Rejected

### Porewater

- **Cumulative Percent of Porewater Syringe filled:** %
- **pH of Sediment in Sampler**: su
- **Description:**

### Sediment Characteristics

- **Type**: % Silt (1/16 mm)
- **% Sand**: (1/16 - 2 mm)
- **% Gravel**
- **% Cobbles**
- **% Silica Glass**

- **Color**: Munsell Color Chart #:
  - Description:

- **Redox Boundary**: Present? Yes No
  - If present -- Depth Below:
  - Sediment Surface (inches):

- **Odor**: None Hydrogen sulfide
  - Other:

### Amphipods:

- **Debris/twigs/leaves**:
- **Tubes**:
- **Macrophytes**:

### Sample Collected Using

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Photo Numbers *s*

- (see Photo Log for descriptions)
- **Sediment in Grab**: Time:
- **Homogenized Sample**: Time:
- **Other**: Time:

### Sediment (SE) Sample ID:

- **Time**: 
- **# Containers**: 
- **Volume**: 

### Duplicate SE Sample ID:

- **Time**: 
- **# Containers**: 
- **Volume**: 

### Split SE Samples (EPA/NPS/CCT):

- **Time**: 
- **# Containers**: 
- **Volume**: 

### Pore Water (PW) Sample ID:

- **Time**: 
- **# Containers**: 
- **Volume**: 

### Sample Lead Initials: D4 Date: 10/12/15

### Field Supervisor Initials: D4 Date: 10/12/15

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>19-a 898</td>
<td>10:56</td>
<td>Sugalski</td>
<td>Upstream</td>
<td>Section 50</td>
</tr>
<tr>
<td>19-c 660</td>
<td>11:41</td>
<td>Sugalski</td>
<td>Downstream</td>
<td>Bank of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sample Location</td>
</tr>
<tr>
<td>19-c 662</td>
<td>11:41</td>
<td>Sugalski</td>
<td>Left Bank</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sample 1800.4+</td>
</tr>
<tr>
<td>19-c 664</td>
<td>11:52</td>
<td>Sugalski</td>
<td>Upstream</td>
<td>Water in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gravel</td>
</tr>
<tr>
<td>19-c 665</td>
<td>12:03</td>
<td>Sugalski</td>
<td>Upstream</td>
<td>Material in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gravel</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>19-01/15</td>
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</table>

Field Supervisor Initials:  
Sample Lead Initials:  

URS
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>119-0606</td>
<td>1217</td>
<td>Sugielski</td>
<td></td>
<td>material in 6th grab</td>
</tr>
<tr>
<td>119-0608</td>
<td>1217</td>
<td>Sugielski</td>
<td></td>
<td>material in 7th grab</td>
</tr>
<tr>
<td>119-0610</td>
<td>1228</td>
<td>Sugielski</td>
<td>lost bank</td>
<td>lost bank</td>
</tr>
<tr>
<td>119-0611</td>
<td>1227</td>
<td>Sugielski</td>
<td>right bank</td>
<td>right bank, river +26</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: 204  Date: 10/30/13
Sample Lead Initials: 22   Date: 10/19/13
Sample Location Form
Upper Columbia River RIIFS
2013 Phase 2 Sediment Study

Project Number: 3630159
Date: 10/21/13
Station Identifier: 1-R7
Vessel: MAZAMA

Sampling Crew: BETTER/SLANTER/BILLY
C.R. Observer: Squeezkin

Arrival Time: 1334
Departure Time: 1416

River Stage:
Water Surface Elev. (ft): __________
Water Surface Elevation Source: __________

Weather Conditions Upon Arrival
Temp (°F): 55
Wind (mph): 5
Clouds/Precipitation: CLEAR

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 739

Water Surface: (Gentle) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, breaches, wetlands, oxbows, offshoots, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for description)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-0658</td>
<td>1334</td>
<td>PENTAX OPTIO TA-1</td>
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<td>120-0660</td>
<td>1334</td>
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<td>120-0659</td>
<td>1334</td>
<td></td>
</tr>
<tr>
<td>120-0651</td>
<td>1334</td>
<td></td>
</tr>
</tbody>
</table>

General Notes:
Gently sloping rocky shore to east at camp ground
West shore steeper

C.R. - cultural resources
Field Supervisor Initials: DB Date: 10/21/13
Sample Lead Initials: MW Date: 10/21/13

URS
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 1-R7

**Anchor Point (max 3):** 1 2 3  
**Drop #:** 1 2 3  
**Cast Time:** 13:34  
**Water Depth (feet):** 48.5

**EASTING:** 418394.28  
**NORTHING:** 5422312.57

**Sample Location:** (NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___%
- pH of Sediment in Sampler: ___ su
- Description: ____________

**Sediment Characteristics**

- Type: % Silt (<1/16 mm)  
- % Sand (1/16 - 2 mm)
- % Gravel
- % Cobbles
- % Silica Glass
- Color: Munsell Color Chart #: ____________
- Description:

**Redox Boundary:**

- Present?  
  - Yes  
  - No
- If present -- Depth Below Sediment Surface (inches):

**Odor:**

- None  
- Hydrogen sulfide
- Other:

**Amphipods:**

- Debris (twigs/leaves):
- Other:

**Sample Collected Using**

- Stratified sediment: Yes  No
- Sheen Present: Yes  No
- Sample Collected Using:  
  - Van Veen
  - Eckman
  - Ponar
  - Shovel
- Sediment in Grab: ____________
- Homogenized Sample: ____________
- Other: ____________

**Photo Numbers'**

- Sediment (SE): ____________  
  - Time: ____________  
  - # Containers: ____________  
  - Volume: ____________  
  - %
- Duplicate SE: ____________  
  - Time: ____________  
  - # Containers: ____________  
  - Volume: ____________  
  - %
- Split SE: ____________  
  - Time: ____________  
  - # Containers: ____________  
  - Volume: ____________  
  - %
- Pore Water (PW): ____________  
  - Time: ____________  
  - # Containers: ____________  
  - Volume: ____________  
  - %

**Sample Lead Initials:** MV  
**Date:** 4/24/13  
**Field Supervisor Initials:** JA  
**Date:** 10/24/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form
## Upper Columbia River RI/FS
### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>0 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>48.41</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>No recovery</td>
</tr>
<tr>
<td>Angles (&lt; 5° max):</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD_83_UTM_Zone_11_North</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is:
   - Accepted
   - Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: __________%
- pH of Sediment in Sampler: __________ su
- Description:

### Sediment Characteristics
<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Present?</td>
<td>Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods: Yes No
- Debris (twigs/leaves):
- Other:
- Tubes:
- Macrophytes:
- Hydrogen sulfide
- Other:

### Stratified sediment: Yes No
- Sheen Present: Yes No
- Sample Collected Using:
  - Van Veen
  - Eckman
  - Ponar
  - Shovel
  - Sediment in Grab: ________ Time: ________
  - Homogenized Sample: ________ Time: ________
  - Other: ________ Time: ________

### Sediment (SE) Sample ID: ________ Time: ________ # Containers: ________ Volume: ________ %
### Duplicate SE Sample ID: ________ Time: ________ # Containers: ________ Volume: ________ %
### Split SE Samples (EPA/NPS/CCT): ________ Time: ________ # Containers: ________ Volume: ________ %
### Pore Water (PW) Sample ID: ________ Time: ________ # Containers: ________ Volume: ________ %

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: __________ Date: ________
Field Supervisor Initials: __________ Date: ________
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1-R7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>0 2 3</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>1346</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration</td>
<td>No recovery, very small amount of sediment present</td>
</tr>
<tr>
<td>(inches):</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No / Yes</td>
</tr>
</tbody>
</table>

**Sample Location:**
EASTING: 448321.19 (NAD_83_UTM_Zone_11_North)  
NORTHING: 5422302.28

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler?  
   Accepted [ ]  Rejected [X]
2. Overlying water present?  
   Accepted [X]  Rejected [ ]
3. Overlying water excessively turbid?  
   Accepted [X]  Rejected [ ]
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   Accepted [X]  Rejected [ ]
5. Desired penetration depth (4 to 6 inches) achieved?  
   Accepted [X]  Rejected [ ]
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   Accepted [X]  Rejected [ ]
7. Sample is:  
   Accepted [X]  Rejected [ ]

**Porewater**
Cumulative Percent of Porewater Syringe filled:  
Accepted [X]  Rejected [ ]

pH of Sediment in Sampler:  
Description:  

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass:</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
</table>

**Amphipods:**  
Debris (twigs/leaves):  
Other:  

**Tubes:**  
Macrophytes:  

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sheen Present:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: MU  
Date: 10/21/13  
Field Supervisor Initials: 2A  
Date: 10/22/13

**Sample ID Format:**
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

**Field Supervisor Initials:** 2A  
Date: 10/22/13

**Sample ID Format:**
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

**Field Supervisor Initials:** 2A  
Date: 10/22/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 1-R7

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time: 1352
Angle (< 5°max) Yes No

Sample Location: (NAD_83_UTM_Zone_11_North)
EASTING: 448343.47 NORTHING: 5422307.17

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of
   channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle,
   tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: su

Sediment Characteristics
Type:  % Silt (%<1/16 mm)
     % Sand (1/16 - 2 mm)
     % Gravel
     % Cobbles
     % Silica Glass:
Color: Munsell Color Chart #:

Redox Boundary:
Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide

Amphipods: Debris (twigs/leaves): Tubes: Macrophytes: Other:
Stratified sediment: Yes No
Sheen Present: Yes No
Sample Collected Using Van Veen Eckman
     Ponar
     Shovel
Photo Numbers 's (see Photo Log for descriptions)
Sediment in Grab: Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID: Time:
# Containers: Volume: %
Duplicate SE Sample ID: Time:
# Containers: Volume: %
Split SE Samples (EPA/NPS/CCT):
# Containers: Volume: %
Pore Water (PW) Sample ID: Time:
# Containers: Volume: %

Sample Lead Initials: Date: 11/28/15
Field Supervisor Initials: Date: 11/28/15

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sample Location:
- Project Number: 36310189
- Water Depth (feet): 48.8
- Drop #: 1 (2 3) Cast Time: 1356
- Sampler Penetration (inches): No recovery
- Anchor Point (max 3): 1 2 3
- Angle (< 5° max): Yes
- Cultural Resources Observed?: No Yes

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: Accepted Rejected
- pH of Sediment in Sampler:
- Description:

### Sediment Characteristics
- Type: % Silt (% Silt (1/16 mm)) % Sand (% Sand (1/16 - 2 mm)) % Gravel % Gravel % Cobbles % Cobbles % Silica Glass%
- Color: Munsell Color Chart #:
- Description:
- Redox Boundary: Present? Yes No
- Odor: None Hydrogen sulfide

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris (twigs/leaves):</td>
<td>Other:</td>
</tr>
</tbody>
</table>

### Sample Collected Using
- Stratified sediment: Yes No
- Sheen Present: Yes No
- Sample Collected Using:
  - Van Veen
  - Eckman
  - Ponar
  - Shovel
  - Other:

### Sediment (SE) Sample ID:
- Time: ___
- # Containers: ___
- Volume: ___ %

### Duplicate SE Sample ID:
- Time: ___
- # Containers: ___
- Volume: ___ %

### Split SE Samples (EPA/NPS/CCT):
- Time: ___
- # Containers: ___
- Volume: ___ %

### Pore Water (PW) Sample ID:
- Time: ___
- # Containers: ___
- Volume: ___ %

### Sample Lead Initials: MW Date: 1/29/13
### Field Supervisor Initials: OH Date: 1/29/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189  
Station Identifier: 1-27

Anchor Point (max 3) 1 2 3  
Water Depth (feet): YS.5'

Drop # 1 2 3  
Cast Time 1401  
Sampler Penetration (inches): No recovery

Angle (< 5°max) Yes No  
Cultural Resources Observed? No Yes

Sample Location: NAD_83_UTM_Zone_11_North  
EASTING: 448365.70  
NORTHING: 52422297.30

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected
pH of Sediment in Sampler: su Description:

Sediment Characteristics
Type: % Silt <1/16 mm) Color: Munsell Color Chart #: Description:
% Sand (1/16 - 2 mm) Redox Boundary: Present? Yes No
% Gravel If present -- Depth Below Sediment Surface (inches):
% Cobbles
% Silica Glass:
Odor: None Hydrogen sulfide Other:

Amphipods: Debris (twigs/leaves):
Sample Collected Using: Van Veen Eckman
Horn placements: Ponor Shovel

Photo Numbers 's
(see Photo Log for descriptions)
Sediment in Grab: Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID: Time:
# Containers:
Volume:

Duplicate SE Sample ID: Time:
# Containers:
Volume:

Split SE Samples (EPA/NPS/CCT): Time:
# Containers:
Volume:

Pore Water (PW) Sample ID: Time:
# Containers:
Volume:

Sample Lead Initials: Date:
Field Supervisor Initials: Date:

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 1-R-7

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>48.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>14:05</td>
</tr>
</tbody>
</table>

**Sample Location:** 448347.14 E, 232637.57 N (NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  **NO**
2. Overlying water present? **YES**  **NO**
3. Overlying water excessively turbid? **YES**  **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  **NO**
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled:  
- Accepted  
- Rejected

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

Type:  
- % Silt  
- % Sand  
- % Gravel  
- % Cobbles  
- % Silica Glass:

Redox Boundary:  
- Present? Yes  No
- If present -- Depth Below Sediment Surface (inches):

Sand:  
- Odor: None  Hydrogen sulfide

**Amphipods:**

**Debris (twigs/leaves):**

**Macrophytes:**

**Tubes:**

**Other:**

**Photo Numbers:**

(see Photo Log for descriptions)

**Sediment (SE) Sample ID:**  
- Time:  
- # Containers:  
- Volume: %

**Duplicate SE Sample ID:**  
- Time:  
- # Containers:  
- Volume: %

**Split SE Samples (EPA/NPS/CCT):**  
- Time:  
- # Containers:  
- Volume: %

**Pore Water (PW) Sample ID:**  
- Time:  
- # Containers:  
- Volume: %

**Sample Lead Initials:**  
**Date:** 4/21/13

**Field Supervisor Initials:**  
**Date:** 10/22/13

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-R7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>37.1</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>14.09</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>No recovery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING:</td>
<td>448367.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORTHING:</td>
<td>542234.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Location: 448367.59 (NAD_83_UTM_Zone_11_North) 542234.33

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? | YES | NO |
2. Overlying water present? | YES | NO |
3. Overlying water excessively turbid? | YES | NO |
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | YES | NO |
5. Desired penetration depth (4 to 6 inches) achieved? | YES | NO |
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | YES | NO |
7. Sample is: | Accepted | Rejected |

Porewater

Cumulative Percent of Porewater Syringe filled: | | Accepted | Rejected

pH of Sediment in Sampler: | | su | Description: |

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(≤1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary Present? Yes No</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: | | | |
Debris (twigs/leaves): | | | |

Sample Collected Using

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
<th>Time:</th>
<th>Homogenized Sample:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Photo Numbers' s

(see Photo Log for descriptions)

Sediment (SE) Sample ID: | | Time: | # Containers: | Volume: | % |
Duplicate SE Sample ID: | | Time: | # Containers: | Volume: | % |
Split SE Samples (EPA/NPS/CCT): | | Time: | # Containers: | Volume: | % |
Pore Water (PW) Sample ID: | | Time: | # Containers: | Volume: | % |

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 1-R7

- **Anchor Point (max 3):**  
  - 1  
  - 2  
  - 3

- **Water Depth (feet):** 474

- **Drop #:**  
  - 1  
  - 2  
  - 3  

- **Cast Time:** 14:12

- **Sampler Penetration (inches):** (No recovery)

- **Angle (< 5° max):**  
  - Yes  
  - No

- **Cultural Resources Observed?**  
  - No  
  - Yes

**Sample Location:**  
- **NAD_83_UTM_Zone_11North**
  - **EASTING:** 448,320.28
  - **NORTHING:** 842,229.05

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**  
3. Overlying water excessively turbid? **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
7. Sample is:  
   - Accepted
   - Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:** ___%
- **pH of Sediment in Sampler:** __%

**Sediment Characteristics**

- **Type:**  
  - % Silt: ____% (<1/16 mm)
  - % Sand: ____% (1/16 - 2 mm)
  - % Gravel: ____%
  - % Cobbles: ____%
  - % Silica Glass: ____%

- **Color:** Munsell Color Chart #:  

- **Redox Boundary:**  
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches):

**Amphipods:**  
- **Debris/twigs/leaves:**
- **Tubes:**
- **Macrophytes:**

**Sample Collected Using**

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**
- **Homogenized Sample:**
- **Other:**

**Photo Numbers 's**

(see Photo Log for descriptions)

**Sediment (SE) Sample ID:**

- **Time:**
- **# Containers:**
- **Volume:**

**Duplicate SE Sample ID:**

- **Time:**
- **# Containers:**
- **Volume:**

**Split SE Samples (EPA/NPS/CCT):**

- **Time:**
- **# Containers:**
- **Volume:**

**Pore Water (PW) Sample ID:**

- **Time:**
- **# Containers:**
- **Volume:**

**Sample Lead Initials:**  
**Date:** 1/12/13  
**Field Supervisor Initials:**  
**Date:** 1/19/13

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 1-R7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/21/13</td>
<td>Vessel: MAZAMA</td>
</tr>
<tr>
<td>Camera Serial #:</td>
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## Photos Log

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>120-0658</td>
<td>1334</td>
<td>MU</td>
<td>North</td>
<td>North of 1-R7</td>
</tr>
<tr>
<td>120-0659</td>
<td>1334</td>
<td>MU</td>
<td>EAST</td>
<td>EAST SHORE 1-R7</td>
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<td>120-0660</td>
<td>1334</td>
<td>MU</td>
<td>South</td>
<td>SOUTH FROM 1-R7</td>
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<tr>
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<td>WEST</td>
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<tr>
<td>120-0662</td>
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<td>MU</td>
<td>STATION ID</td>
<td>1-R7</td>
</tr>
<tr>
<td>120-0663</td>
<td>1338</td>
<td>KB</td>
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<td>EMPTY GRAB 1-R7</td>
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<tr>
<td>120-0664</td>
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<td>AP1 Drop 2 Empty C YPab</td>
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<td>120-0665</td>
<td>1348</td>
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<td>AP1 Drop 3</td>
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Field Supervisor Initials: [Handwritten]  
Date: 10/29/13  
Sample Lead Initials: [Handwritten]  
Date: 10/21/13  

---

*Note: The text above is a form of a photo log used in environmental studies to document and log photographs taken during fieldwork.*
<table>
<thead>
<tr>
<th>Photo ID</th>
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<th>Description</th>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-0666</td>
<td>1354</td>
<td>EMPTY GRAB AP2 DROP2</td>
<td>120-0667</td>
<td>1358</td>
<td>EMPTY GRAB AP2 DROP2</td>
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<td>120-0668</td>
<td>1402</td>
<td>EMPTY GRAB AP2 DROP3</td>
<td>120-0669</td>
<td>1407</td>
<td>EMPTY GRAB AP3 DROP1</td>
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<td>120-0670</td>
<td>1410</td>
<td>EMPTY GRAB AP3 DROP2</td>
<td>120-0671</td>
<td>1414</td>
<td>EMPTY GRAB AP3 DROP3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: 
Sample Lead Initials:

Date: 10/21/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: I-R8
Date: 10/21/13
Vessel: WAZAMA
Sampling Crew: EVART/PRATCH/KIELMANN
Vessel Crew: TRUDEL/COLLINS/BIBBY
EPA Observer: CAUTHIER
C.R. Observer: Sgove/Hinkin
Arrival Time: 1447
Departure Time: 1500

River Stage:
Water Surface Elev. (ft): ____________
Water Surface Elevation Source: ____________

Weather Conditions Upon Arrival:
Temp (°F): 57°
Wind (mph): <5
Clouds/Precipitation: CLEAR

Site Information:
Boat Position: Powered (N)anchored (Y)
River Mile: 7387
Water Surface: Calm (S)mall Waves (Choppy)
Surface Vegetation Present: Yes (Y) No (N)
Was Vegetation Removed: Yes (Y) No (N)

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Embankment to west of main channel.

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
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<tbody>
<tr>
<td>120-0673</td>
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<td>PENTAX OPTIO TA-1</td>
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<tr>
<td>120-0675</td>
<td>1447</td>
<td>PENTAX OPTIO TA-1</td>
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<tr>
<td>120-0674</td>
<td>1447</td>
<td>PENTAX OPTIO TA-1</td>
<td></td>
<td></td>
<td></td>
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</table>

General Notes:

C.R. - cultural resources
Field Supervisor Initials: DOH Date: 10/20/13
Sample Lead Initials: MW Date: 10/21/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

---

#### Project Number: 36310189

#### Station Identifier: 1-RS

#### Anchor Point (max 3) 1 2 3

#### Drop # 1 2 3 Cast Time 1450

#### Angle (< 5°max) Yes No

#### Sample Location:

- **EASTING:** [NAD_83_UTM_Zone_11_North] 446291.73
- **NORTHING:** 54121192.47

---

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

#### Porewater

- Cumulative Percent of Porewater Syringe filled: **Accepted**
- pH of Sediment in Sampler: **Accepted**

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

#### Amphipods:

- Debris (twigs/leaves):
- Other:

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
</tr>
</tbody>
</table>

#### Photo Numbers ’s

- (see Photo Log for descriptions)

| Sediment (SE) Sample ID: | Time: |
| Duplicate SE Sample ID: | Time: |
| Split SE Samples (EPA/NPS/CCT): | Time: |
| Pore Water (PW) Sample ID: | Time: |

---

#### Sample Lead Initials: MW

#### Date: 10/21/13

#### Field Supervisor Initials: JF

#### Date: 10/22/13

---

Sample ID Format:
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

---
**Project Number:** 36310189  

**Anchor Point (max 3):** 1 2 3  

**Drop #:** 1 2 3  

**Cast Time:** 145'7"  

**Angle (< 5° max):** Yes No  

**Sample Location:** (NAD_83_UTM_Zone_11_North)  

**EASTING:** 4462 2676  

**NORTHING:** 5421156 58  

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO  
2. Overlying water present? YES NO  
3. Overlying water excessively turbid? YES NO  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO  
5. Desired penetration depth (4 to 6 inches) achieved? YES NO  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO  
7. Sample is: Accepted Rejected  

**Porewater**  

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
<th>80%</th>
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</thead>
</table>

**pH of Sediment in Sampler:**  

**Sediment Characteristics**  

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt</th>
<th>&lt;1 (&lt;1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>&lt;1 (1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| % Silica Glass | 10  

**Amphipods:** Organic debris  

**Debris (twigs/leaves):**  

**Tubes:**  

**Other:**  

**Macrophytes:** Sucher fish  

**Sample Collected Using:** Van Veen  

**Photo Numbers:** (see Photo Log for descriptions)  

| Sediment in Grab: | Time:  
|--------------------|----------|  
| Homogenized Sample: | Time:  
| Other: | Time:  

**Sediment (SE) Sample ID:** SE-1-R8  

**Time:** 15417  

**# Containers:** 4  

**Volume:** 100%  

**Duplicate SE Sample ID:**  

**Time:**  

**# Containers:**  

**Volume:**  

**Split SE Samples (EPA/NPS/CCT):**  

**# Containers:** 1  

**Volume:** 50%  

**Pore Water (PW) Sample ID:** PW-1-R8  

**Time:** 1527  

**# Containers:** 3  

**Volume:** 100%  

**Sample Lead Initials:** MU  

**Date:** 8/22/13  

**Field Supervisor Initials:** OX  

**Date:** 10/22/13  

**Sample ID Format:**  

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  

PW-1-B2: Pore Water at Station 1-B2  

---

**URS**
### Photo Log
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tr>
<td>120-0672</td>
<td>1430</td>
<td>MV</td>
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<td>STATION ID - 1-R8</td>
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<td>120-0673</td>
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<td>MV</td>
<td>EAST</td>
<td>EAST OF 1-R8</td>
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<tr>
<td>120-0674</td>
<td>1447</td>
<td>MV</td>
<td>SOUTH</td>
<td>SOUTH OF 1-R8</td>
</tr>
<tr>
<td>120-0675</td>
<td>1447</td>
<td>MV</td>
<td>WEST</td>
<td>WEST OF 1-R8</td>
</tr>
<tr>
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<td>MV</td>
<td>NORTH</td>
<td>North of station 1-R8</td>
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<tr>
<td>120-0677</td>
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<td></td>
<td>Material from AP1</td>
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<td>Sediment @ AP2</td>
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<td>Drop 2</td>
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<tr>
<td>120-0679</td>
<td>1459</td>
<td>MV</td>
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<td>Sediment in Scoop</td>
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</tbody>
</table>

Field Supervisor Initials: [Signature] Date: 10/21/13
Sample Lead Initials: [Signature] Date: 10/21/13
Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
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<th>Time</th>
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<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>120-0680</td>
<td>1511</td>
<td>MW</td>
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<td>Sediment in tub</td>
</tr>
<tr>
<td>120-0681</td>
<td>1518</td>
<td>MW</td>
<td></td>
<td>Porewater collection</td>
</tr>
<tr>
<td>120-0682</td>
<td>1578</td>
<td>MW</td>
<td></td>
<td>Porewater Collection</td>
</tr>
<tr>
<td>120-0683</td>
<td>1543</td>
<td>MW</td>
<td></td>
<td>Homogenized sediment</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature]  Date: 10/22/13
Sample Lead Initials: [Signature]  Date: 10/21/13
Sample Location Form
Upper Columbia River RIFS
2013 Phase 2 Sediment Study

Project Number: 38310189
Date: 10/22/13
Sampling Crew: VETERAN/MAHNER/DISERVEN
EPA Observer: CULBERTSON
Arrival Time: 0917
River Stage:
Water Surface Elev. (ft):
Water Surface Elevation Source:

Site Information:
Boat Position: Powered
River Mile:
Water Surface: (Calm)
Surface Vegetation Present: Yes
Was Vegetation Removed: Yes
Notable shore surface features:
(house outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)
Photo ID: 121-0691 Time: 0920
Photo ID: 121-0692 Time: 0920

Camera ID: ATRAX OPTO TA-1

General Notes:
Stabilin in 30-35' Eels of water
- very small amount of gravel, in last drop. No sediment recovery in any other grabs.
- No sample collected
- proceed to 1B-C2 which is next reserve for 1-C2

C.R. - cultural resources

Field Supervisor Initials: DH Date: 10/24/13
Sample Lead Initials: MM Date: 10/22/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>1-R9</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>0 2 3</td>
<td>Water Depth (feet):</td>
<td>32.5'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>No recovery</td>
</tr>
<tr>
<td>Angle (&lt; 5 max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

**Sample Location:** 
EASTING: [NAD_83_UTM_Zone_11_North] 445389.85  NORTING: 542160.91

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No
2. Overlying water present?  
   - Yes  
   - No
3. Overlying water excessively turbid?  
   - Yes  
   - No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No
7. Sample is:  
   - Accepted
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
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</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #:</td>
<td>Description:</td>
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<tr>
<td>Redox Boundary</td>
<td>Present?</td>
<td>Yes</td>
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<tr>
<td>Odor</td>
<td>None</td>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Other:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

| Debris (twigs/leaves): | | | | |
| Debris (twigs/leaves): | | | | |
| Sample Collected Using | | | | |
| Sediment in Grab: | | | | |
| Homogenized Sample: | | | | |
| Other: | | | | |

**Photo Numbers' s**

(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
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<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** MV  
Date: 10/22/13  
Field Supervisor Initials: JH  
Date: 9/4/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

*Upper Columbia River RI/FS*

*2013 Phase 2 Sediment Study*

---

**Project Number:** 36310189  
**Station Identifier:** 1-249  
**Drop #** 1 2 3  
**Cast Time:** 0828  
**EASTING:** 44590714  
**NORTHING:** 5421152163

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**  
3. Overlying water excessively turbid? **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
7. Sample is: Accepted  

**Porewater**

Cumulative Percent of Porewater Syringe filled:          

**pH of Sediment in Sampler:** su  

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Munsell Color Chart #:</td>
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<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Amphipods:**  
Debris(twigs/leaves):  
Other:  

**Macrophytes:**  
Stratified sediment: Yes  
Sheen Present: Yes  

**Sample Collected Using**

<table>
<thead>
<tr>
<th><strong>Sample ID Format:</strong></th>
<th><strong>Sample Lead Initials:</strong></th>
<th><strong>Date:</strong></th>
<th><strong>Field Supervisor Initials:</strong></th>
<th><strong>Date:</strong></th>
</tr>
</thead>
</table>

---

**Pore Water (PW) Sample ID:**  
**# Containers:**  
**Volume:**  

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 1-R9

Anchor Point (max 3) 1 2 3
Water Depth (feet): 25.21

Drop # 1 2 3 Cast Time 09:31
Sampler Penetration (inches): No recovery

Angle (< 5°max) Yes No
Cultural Resources Observed? No Yes

Sample Location: [NAD_83_UTM_Zone_11_North]
EASTING: 445916.32 NORTHING: 5421108.32

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: su Description:

Sediment Characteristics
Type: % Silt (1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Color: Munsell Color Chart #:
Description:
Redox Boundary:
Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris(twigs/leaves):
Other:

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers 's
(see Photo Log for descriptions)

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 11/22/13 Field Supervisor Initials: Date: 1/24/14

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Project Number: 36310189

**Station Identifier:** 1-R 7

- **Anchor Point (max 3):** 1 2 3
- **Water Depth (feet):** 29.1

- **Drop #:** 1 2 3
- **Cast Time:** 09:34
- **Sample Penetration (inches):** No recovery

- **Angle (< 5°max):** Yes
- **Cultural Resources Observed?** No

**Sample Location:**
- **EASTING:** 445892.93
- **NORTHING:** 542107.71

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
   **NO**
2. Overlying water present? **YES**  
   **NO**
3. Overlying water excessively turbid? **YES**  
   **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
   **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
   **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
   **NO**
7. Sample is: Accepted Rejected

#### Porewater

- **Cumulative Percent of Porewater Syringe filled:** ___%  
  Accepted Rejected
- **pH of Sediment in Sampler:** ___

#### Sediment Characteristics

| Type          | % Silt  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1/16 mm)</td>
<td>___</td>
</tr>
<tr>
<td>% Sand</td>
<td>___</td>
</tr>
<tr>
<td>(1/16 - 2 mm)</td>
<td>___</td>
</tr>
<tr>
<td>% Gravel</td>
<td>___</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>___</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>___</td>
</tr>
</tbody>
</table>

- **Color:** Munsell Color Chart #: ___
- **Description:** ___
- **Redox Boundary:** Present? Yes No
- **If present -- Depth Below Sediment Surface (inches):** ___
- **Odor:** None Hydrogen sulfide

#### Amphipods:
- **Present?** Yes No

#### Debris (twigs/leaves):
- **Present?** Yes No

#### Tubes:
- **Present?** Yes No

#### Macrophytes:
- **Present?** Yes No

#### Stratified sediment: **Yes No**

#### Sheen Present: **Yes No**

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Eckman</td>
<td>Sediment in Grab: Time:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Homogenized Sample: Time:</td>
</tr>
<tr>
<td>shovel</td>
<td>Other: Time:</td>
</tr>
</tbody>
</table>

- **Sediment (SE) Sample ID:** ___ Time: ___  
  # Containers: ___ Volume: ___ %
- **Duplicate SE Sample ID:** ___ Time: ___  
  # Containers: ___ Volume: ___ %
- **Split SE Samples (EPA/NPS/CCT):** ___ Time: ___  
  # Containers: ___ Volume: ___ %
- **Pore Water (PW) Sample ID:** ___ Time: ___  
  # Containers: ___ Volume: ___ %

#### Field Supervisor Initials: 

- **Sample ID Format:**
  - SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
  - SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
  - PW-1-B2: Pore Water at Station 1-B2

### Sample Lead Initials:

- **Date:** 12/22/13

### Field Supervisor Initials:

- **Date:** 1/23/13
Project Number: 36310189
Station Identifier: 1-R9

Anchor Point (max 3) 1 2 3
Water Depth (feet): 328

Drop # 1 2 3 Cast Time 0937
Sampler Penetration (inches): No recovery

Angle (< 5°max) Yes No
Cultural Resources Observed? No Yes

Sample Location: E111000 (NAD83_UTM_Zone_11_North)

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: Accepted Rejected

pH of Sediment in Sampler: Description:

Sediment Characteristics
Type: % Silt (%<1/16 mm)
% Sand (%1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Color: Munsell Color Chart #: Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None
Other: Hydrogen sulfide

Amphipods: Other:
Debris(twigs/leaves):

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Other:

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: Date: 04/27/13
Field Supervisor Initials: Date: 05/27/13

URS
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>0940</td>
</tr>
<tr>
<td>Sampler Penetration (inches)</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td></td>
</tr>
<tr>
<td>Water Depth (feet)</td>
<td>32.41</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td></td>
</tr>
</tbody>
</table>

Sample Location:  
EASTING: 445916.79  
NORTHING: S7421132.14  

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?  
   Accepted: NO  
2. Overlying water present?  
   Accepted: NO  
3. Overlying water excessively turbid?  
   Accepted: NO  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   Accepted: NO  
5. Desired penetration depth (4 to 6 inches) achieved?  
   Accepted: NO  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   Accepted: NO  
7. Sample is:  
   Accepted: No  
   Rejected: Yes

Porewater  
Cumulative Percent of Porewater Syringe filled:  
Accepted: NO  
Rejected: YES

\[ \text{pH of Sediment in Sampler: } \text{Accepted: NO} \quad \text{Rejected: YES} \]

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(1/16 mm)</th>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox</td>
<td>Present?</td>
<td>Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Boundary: If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods:  
Debris(twigs/leaves): Other:

Sample Collected Using  
Van Veen  
Eckman  
Ponar  
Shovel

Photo Numbers (see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: MV  
Date: 6/22/13  
Field Supervisor Initials: CA  
Date: 7/4/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

URS
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 1-R9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 33.6</td>
</tr>
<tr>
<td>Drop #</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present? YES NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid? YES NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved? YES NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is: Accepted Rejected</td>
<td></td>
</tr>
</tbody>
</table>

### Porewater
- Cumulative Percent of Porewater Syringe filled: __%__
- Accepted Rejected

### Sediment Characteristics
- Type: % Silt (%(1/16 mm)
- % Sand (%(1/16 - 2 mm)
- % Gravel
- % Cobble
- % Silica Glass

### Amphipods:
- Debris (twigs/leaves):

### Tubes:

### Macrophytes:

### Stratified sediment: Yes No
### Sheen Present: Yes No

### Sample Collected Using
- Sample ID Format:
  - SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
  - SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
  - PW-1-B2: Pore Water at Station 1-B2
- Time:
- Sediment (SE) Sample ID: __ Time: __ # Containers: __ Volume: __ %
- Duplicate SE Sample ID: __ Time: __ # Containers: __ Volume: __ %
- Split SE Samples (EPA/NPS/CCT): __ Time: __ # Containers: __ Volume: __ %
- Pore Water (PW) Sample ID: __ Time: __ # Containers: __ Volume: __ %
### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td></td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td>None</td>
<td></td>
<td>Hydrogen sulfide</td>
<td>Other:</td>
</tr>
</tbody>
</table>

### Amphipods

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
<th>Other:</th>
</tr>
</thead>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

### Sample Lead Initials:

- Name: AM
- Date: 10/22/13

### Field Supervisor Initials:

- Name: D4
- Date: 10/27/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>1-29</td>
<td>24.2</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>0948</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>(NAD_83_UTM_Zone_11_North)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>445887.22</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>3421132.66</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES
2. Overlying water present? YES
3. Overlying water excessively turbid? YES
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES
5. Desired penetration depth (4 to 6 inches) achieved? YES
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES
7. Sample is: Accepted

Porewater

- Cumulative Percent of Porewater Syringe filled: ___ %
- pH of Sediment in Sampler: __________su
- Description:
- Accepted
- Rejected

Sediment Characteristics

- Type: % Silt (1/16 mm) __________
- % Sand (1/16 - 2 mm) __________
- % Gravel __________
- % Cobbles __________
- % Silica Glass: __________
- Color: Munsell Color Chart #: __________
- Description:
- Redox Boundary: Present? Yes No
- If present -- Depth Below Sediment Surface (inches): __________
- Odor: None Hydrogen sulfide
- Other:

Amphipods:
- Debris (twigs/leaves):
- Other:

Sample Collected Using

- Stratified sediment: Yes No
- Sheen Present: Yes No
- Van Veen Eckman
- Ponar
- Shovel
- Sediment in Grab: 121-0783
- Time: 0949
- Homogenized Sample: Time:
- Other: Time:

Photo Numbers' (see Photo Log for descriptions)

- Sediment (SE) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %
- Duplicate SE Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %
- Split SE Samples (EPA/NPS/CCT): __________ # Containers: __________ Volume: __________ %
- Pore Water (PW) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %

Sample Lead Initials: MW Date: 09/22/13
Field Supervisor Initials: DH Date: 09/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
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<tbody>
<tr>
<td>121-0690</td>
<td>0919</td>
<td>Station ID 1-R9</td>
</tr>
<tr>
<td>121-0691</td>
<td>0920</td>
<td>North of 1-R9</td>
</tr>
<tr>
<td>121-0692</td>
<td>0920</td>
<td>East Shore @ 1-R9</td>
</tr>
<tr>
<td>121-0693</td>
<td>0920</td>
<td>South of 1-R9</td>
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<td>121-0694</td>
<td>0920</td>
<td>West Bank from 1-R9</td>
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<tr>
<td>121-0695</td>
<td>0926</td>
<td>Empty Grab API Drop 1</td>
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<tr>
<td>121-0696</td>
<td>0929</td>
<td>Empty Grab API Drop 2</td>
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<tr>
<td>121-0697</td>
<td>0932</td>
<td>Empty Grab API Drop 3</td>
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### Photo Log
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>121-0698</td>
<td>0935</td>
<td>KB</td>
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<td>EMPTY GRAB, AP2 DROP 1</td>
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<td>121-0699</td>
<td>0935</td>
<td>KB</td>
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<td>EMPTY GRAB, AP2 DROP 2</td>
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<tr>
<td>121-0701</td>
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<td>KB</td>
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<td>0946</td>
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<td>121-0703</td>
<td>0949</td>
<td>KB</td>
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<td>EMPTY GRAB, AP3 DROP 3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: OH  Date: 10/04/13
Sample Lead Initials: MV  Date: 11/22/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310169
Date: 10/23/13
Sampling Crew: VETERAN/PANTHER/BAUMAN

EPA Observer: LOPEZ
Arrival Time: 1348

River Stage:
Water Surface Elev. (ft): ____________________________
Water Surface Elevation Source: ____________________________

Station Identifier: Z-B3
Vessel: MAZHIA
Vessel Crew: TRUXTALL/COLLINS/DIBBY
C.R. Observer: SMITHEM/NIN
Departure Time: 1409
Weather Conditions Upon Arrival:
Temp (°F): 55
Wind (mph): <10
Clouds/Precipitation: CLEAR

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 731

Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes (No)
Was Vegetation Removed: Yes (No)

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID: PENYAX OPTIO TAI

Photo ID: ______________________ Time: ______________________
Photo ID: ______________________ Time: ______________________

General Notes:
10 grabs attempted because on
Grab 7 AP3 Drop1 Grab did not deploy.
No SAMPLE COLLECTED

C.R. - cultural resources

Field Supervisor Initials: O4 Date: 10/24/13
Sample Lead Initials: mW Date: 10/23/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>2-3</td>
</tr>
<tr>
<td>Drop #</td>
<td>2-3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1351</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>19.1</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>n/a</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

#### Sample Location:

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>NAD_83_UTM_Zone_11_North</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>438442.42</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5415713.59</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted Rejected

#### Porewater:

| Cumulative Percent of Porewater Syringe filled: | 100%

| pH of Sediment in Sampler: | Description: |

#### Sediment Characteristics:

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand (1/16 - 2 mm)</th>
<th>Redox Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th>Redox Boundary: If present -- Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Cobble</th>
<th>Odor: None Hydrogen sulfide Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Silica Glass:</th>
</tr>
</thead>
</table>

#### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sample Collecting Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen, Eckman</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td></td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE): Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (FW): Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

#### Sample Lead Initials: MW Date: 10/23/13
#### Field Supervisor Initials: OA Date: 10/24/15

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: Z-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 0 2 3</td>
<td>Water Depth (feet): 18.7</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1353</td>
<td>Sampler Penetration (inches): INDETERMINATE / NO RECOVERY</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

**Sample Location:**
- **EASTING:** 438637.42 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 541502.53

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted Rejected

### Porewater
- **Cumulative Percent of Porewater Syringe filled:** _____%
- **ph of Sediment in Sampler:** su
- **Description:**

### Sediment Characteristics
- **Type:**
  - % Silt (<1/16 mm)
  - % Sand (1/16 - 2 mm)
  - % Gravel
  - % Cobble
  - % Silica Glass

- **Color:** Munsell Color Chart #:
- **Description:**
- **Redox Boundary:**
  - If present -- Depth Below Sediment Surface (inches):
  - Present? Yes No
- **Odor:** None Hydrogen sulfide

### Amphipods:
- **Tubes:**
- **Macrophytes:**

### Debris (twigs/leaves):
- **Other:**

### Sample Collected Using
- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**
- **Homogenized Sample**

### Sediment (SE) Sample ID:
- **Time:**
- **# Containers:**
- **Volume:**

### Duplicate SE Sample ID:
- **Time:**
- **# Containers:**
- **Volume:**

### Split SE Samples (EPA/NPS/CCT):
- **Time:**
- **# Containers:**
- **Volume:**

### Pore Water (PW) Sample ID:
- **Time:**
- **# Containers:**
- **Volume:**

---

**Sample Lead Initials:** AM/ Date: 10/23/13
**Field Supervisor Initials:** RD/ Date: 10/24/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2-133</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 17.9'</td>
</tr>
<tr>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>Drop # 1 2 3</td>
<td>Cast Time 1354</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sampler Penetration (inches): &lt; 2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**  
EASTING: 435625.08  
NORTHING: 8415083.72  
(NAD_83 UTM Zone: 11 North)

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted
   - Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled: ___%  
- pH of Sediment in Sampler: ___
- Description: ___

### Sediment Characteristics

- Type: 
  - % Silt ___ (<1/16 mm)
  - % Sand ___ (1/16 - 2 mm)
  - % Gravel ___
  - % Cobbles 100
  - % Silica Glass: ___

- Color: Munsell Color Chart #:___
- Redox Boundary: Present? Yes No
  - If present -- Depth Below Sediment Surface (inches): ___
- Odor: None Hydrogen sulfide

### Amphipods:

- Debris (twigs/leaves): ___
- Tubes: ___
- Macrophytes: ___

### Sample Collected Using

- Stratified sediment: Yes No
- Sheen Present: Yes No
- Van Veen
- Eckman
- Ponar
- Shovel

### Photo Numbers' (see Photo Log for descriptions):

- Sediment in Grab: ___  
- Homogenized Sample: ___
- Other: ___

### Sediment (SE) Sample ID:

- Time: ___  
- # Containers: ___  
- Volume: ___

### Duplicate SE Sample ID:

- Time: ___  
- # Containers: ___  
- Volume: ___

### Split SE Samples (EPA/NPS/CCT):

- Time: ___  
- # Containers: ___  
- Volume: ___

### Pore Water (PW) Sample ID:

- Time: ___  
- # Containers: ___  
- Volume: ___

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: ___  
Date: 10/23/13  
Field Supervisor Initials: ___  
Date: 10/31/13

[URS Logo]
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>2-B3</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1357s</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>24.5'</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>&lt;3''</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>EASTING:</td>
<td>438633.20</td>
</tr>
<tr>
<td>NORTING:</td>
<td>5715740.49</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES NO**
2. Overlying water present? **YES NO**
3. Overlying water excessively turbid? **YES NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES NO**
7. Sample is: Accepted Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>% Accept</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt</th>
<th>(1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment Surface (inches):</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Decriss/leaves:</th>
<th></th>
</tr>
</thead>
</table>

**Tubes:**

<table>
<thead>
<tr>
<th>Macrophytes:</th>
<th></th>
</tr>
</thead>
</table>

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
</tr>
<tr>
<td>Van Veen</td>
<td>X</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers:**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** MV

**Date:** 10/23/13

**Field Supervisor Initials:** JF

**Date:** 10/24/13

---

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 198.1</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1358</td>
<td>Sampler Penetration (inches): &lt; 3 &quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5(^\circ)) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

Sample Location:  
EASTING: 438615.37 [NAD_83_UTM_Zone_11_North]  NORTHING: 815742.79

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___ %  
Accepted Rejected

pH of Sediment in Sampler: ___  su  Description: ___

Sediment Characteristics  
Type:  
% Silt (\(<1/16 \text{ mm}\)) ___  
% Sand (1/16 - 2 mm) ___  
% Gravel ___  
% Cobble 100  
% Silica Glass: ___  

Color: Munsell Color Chart #: ___  
Description: ___  

Redox Boundary: Present? Yes No  
If present -- Depth Below Sediment Surface (inches): ___  
Odor: None Hydrogen sulfide Other: ___  

Amphipods: ___  
Tubes: ___  
Macrophytes: ___

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>Sediment in Grab: Time:</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Ponor</td>
<td>Homogenized Sample: Time:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: ___  Time: ___  # Containers: ___  Volume: ___  %  
Duplicate SE Sample ID: ___  Time: ___  # Containers: ___  Volume: ___  %  
Split SE Samples (EPA/NPSCCT): ___  # Containers: ___  Volume: ___  %  
Pore Water (PW) Sample ID: ___  Time: ___  # Containers: ___  Volume: ___  %

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th><strong>Project Number:</strong></th>
<th>36310189</th>
<th><strong>Station Identifier:</strong></th>
<th>2-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anchor Point (max 3)</strong></td>
<td>1</td>
<td><strong>Water Depth (feet):</strong></td>
<td>16.4'</td>
</tr>
<tr>
<td><strong>Drop #</strong></td>
<td>1 2</td>
<td><strong>Cast Time:</strong></td>
<td>1359</td>
</tr>
<tr>
<td><strong>Angle (&lt; 5°max)</strong></td>
<td>Yes</td>
<td><strong>Sampler Penetration (inches):</strong></td>
<td>&lt; 2''</td>
</tr>
<tr>
<td><strong>Sample Location:</strong></td>
<td>438604.14</td>
<td>(NAD 83 UTM Zone 11 North)</td>
<td>5415142.18</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No
2. Overlying water present?  
   - Yes
3. Overlying water excessively turbid?  
   - Yes
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes
7. Sample is:  
   - Accepted
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled:  
- Accepted
- Rejected

- pH of Sediment in Sampler:  
- Description:

**Sediment Characteristics**

- **Type:**  
  - % Silt: <1/16 mm  
  - % Sand: 1/16 - 2 mm  
  - % Gravel  
  - % Cobbles: 100  
  - % Silica Glass
- **Color:** Munsell Color Chart #:  
- Description:
- **Redox Boundary:**  
  - Present?: Yes  
  - No
- **Sediment Surface (inches):**
- **Odor:**  
  - None
  - Hydrogen sulfide
  - Other:

**Amphipods:**

- **Debris/twigs/leaves:**
- **Tubes:**
- **Macrophytes:**

**Sample Collected Using**

- Van Veen

- Eckman
- Ponor
- Shovel
- Other:

<table>
<thead>
<tr>
<th><strong>Sediment (SE) Sample ID:</strong></th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duplicate SE Sample ID:</strong></td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td><strong>Split SE Samples (EPA/NPS/CCT):</strong></td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td><strong>Pore Water (PW) Sample ID:</strong></td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:**  
**Date:** 11/23/13  
**Field Supervisor Initials:**  
**Date:** 12/04/13

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
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<th>Project Number:</th>
<th>36310189</th>
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</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>Z-B-3</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5'max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>17.7</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>Indeterminate - Grab Did Not Close</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 438615.06 NAD_83_UTM_Zone_11_North NORTHING: 5415735.40</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected
pH of Sediment in Sampler: su Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles % Silica Glass
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No If present - Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods: Tubes: Macrophytes:
Debris(twigs/leaves): Other:

Sample Collected Using
<table>
<thead>
<tr>
<th>Sample</th>
<th>Van Veen</th>
<th>Eckman</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other:</td>
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</tbody>
</table>

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: MV Date: 11/23/13 Field Supervisor Initials: 94 Date: 1/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-B3

Anchor Point (max 3) 1 2 3
Water Depth (feet): 178

Drop # 1 2 3 Cast Time 1403
Sampler Penetration (inches): < 2'

Angle (< 5°max) Yes No
Cultural Resources Observed? No Yes

Sample Location: 438628.06 NAD_83_UTM_Zone_11_North
EASTING: 5151143.10 NORTHING:

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___ % Accepted Rejected
pH of Sediment in Sampler: ___ su Description: ___

Sediment Characteristics

Type: % Silt ($< 1/16$ mm) Munsell Color Chart #: ___
% Sand (1/16 - 2 mm) Description: ___
% Gravel ___ Redox Boundary: ___
% Cobbles 100 Present? Yes No
% Silica Glass: ___ If present -- Depth below Sediment Surface (inches): ___

Amphipods: ___ Tubes: ___ Macrophytes: ___
Debris (twigs/leaves): ___ Other: ___

Sample Collected Using
Van Veen Eckman
Sheen Present: Yes No
Ponar Homogenized Sample:
Shovel Other:

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample Lead Initials: ___ Date: 10/3/13 Field Supervisor Initials: ___ Date: 12/4/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form
## Upper Columbia River R1/FS
### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>175</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>1405</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td></td>
<td>(NAD_83_UKM_Zone_11_North)</td>
</tr>
<tr>
<td>EASTING:</td>
<td>438619.36</td>
<td>NORTHING:</td>
<td>5415139.06</td>
</tr>
</tbody>
</table>

## Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted **Rejected**

## Porewater
Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected

pH of Sediment in Sampler: __________ su Description: __________

## Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Description:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Redox Boundary: **Present?** **Yes** **No**
If present -- Depth Below Sediment Surface (inches): __________

Odor: **None** **Hydrogen sulfide** Other: __________

## Amphipods:

Debris(twigs/leaves): __________
Tubes: __________
Macrophytes: __________

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab: (see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Eckman</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: __________ Date: __________ / __________
Field Supervisor Initials: __________ Date: __________ / __________
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3 4</td>
<td>Water Depth (feet):</td>
<td>15-11</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 0 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>INDETERMINATE/RECOVERY</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

Sample Location: NAD_83_UTM_Zone_11_North  
EASTING: 4386352.9  NORTING: 5415172.0

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __________ %  
  - Accepted  
  - Rejected

**pH of Sediment in Sampler:** __________  su  
**Description:**

**Sediment Characteristics**

- Type:  
  - % Silt (<1/16 mm): __________  
  - % Sand (1/16 - 2 mm): __________  
  - % Gravel: __________  
  - % Cobble: __________  
  - % Silica Glass: __________

**Color:** Munsell Color Chart #:  
**Description:**

**Redox Boundary:**  
- Present?: Yes  
- No

**Odor:**  
- None  
- Hydrogen sulfide  
- Other:

**Amphipods:** __________  
**Tubes:** __________  
**Macrophytes:** __________

**Sample Collected Using**  
- Van Veen X  
- Eckman  
- Ponar  
- Homogenized Sample  
- Shovel  
- Other:

**Photo Numbers 's**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

Sample Lead Initials: MV  
Date: 10/27/13  
Field Supervisor Initials: LKD  
Date: 10/24/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

**URS**
<table>
<thead>
<tr>
<th>Photo ID</th>
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<th>Photographer</th>
<th>Photo Orientation</th>
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<tbody>
<tr>
<td>122-0792</td>
<td>1332</td>
<td>MW</td>
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<td>STATION ID 2-B3</td>
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<td>122-0793</td>
<td>1349</td>
<td>MW</td>
<td>NORTH</td>
<td>NORTH AT 2-B3</td>
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<td>122-0794</td>
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<td>EAST</td>
<td>EAST SHORE @ 2-B3</td>
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<tr>
<td>122-0795</td>
<td>1349</td>
<td>MW</td>
<td>SOUTH</td>
<td>SOUTH @ 2-B3</td>
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<tr>
<td>122-0796</td>
<td>1350</td>
<td>MW</td>
<td>WEST</td>
<td>WEST SHORE @ 2-B3</td>
</tr>
<tr>
<td>122-0797</td>
<td>1352</td>
<td>KB</td>
<td></td>
<td>EMPTY GRAB API DROP 1</td>
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<tr>
<td>122-0798</td>
<td>1354</td>
<td>KB</td>
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<td>EMPTY GRAB API DROP 2</td>
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<td>122-0799</td>
<td>1355</td>
<td>KB</td>
<td></td>
<td>ROCKS IN GRAB API DROP S</td>
</tr>
</tbody>
</table>
# Photo Log

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project:</th>
<th>38310189</th>
<th>Station Identifier:</th>
<th>2-B3</th>
</tr>
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<tbody>
<tr>
<td>Date:</td>
<td>10/23/13</td>
<td>Vessel:</td>
<td>MAZAMA</td>
</tr>
<tr>
<td>Camera Serial #:</td>
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<table>
<thead>
<tr>
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<td>Photo Orientation:</td>
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<tr>
<td>Description:</td>
<td>ROCKS/COBLES IN AP2 DROP 1</td>
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<td>Description:</td>
<td>COBBLES IN GRAB AP2 DROP 3</td>
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<tr>
<td>Photo Orientation:</td>
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<td>Description:</td>
<td>ROCKS IN GRAB JAMAP2 DROP 3</td>
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<td>Photo Orientation:</td>
<td></td>
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<tr>
<td>Description:</td>
<td>ROCKS/COBLES IN AP3 DROP 2</td>
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<table>
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</tr>
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<td>Photo Orientation:</td>
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<tr>
<td>Description:</td>
<td>ROCKS - COBBLES IN AP3 DROP 3</td>
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<table>
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<tr>
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<td>Photo Orientation:</td>
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<tr>
<td>Description:</td>
<td>EMPTY GRAB AP4 DROP 1</td>
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</table>

Field Supervisor Initials: | Date: | 10/24/13 |
Sample Lead Initials: | Date: | 10/23/13 |
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/17/13
Sampling Crew:
EPA Observer: M. Endo
Arrival Time: 11:05
River Stage:
Water Surface Elev. (ft): 1286.5'
Water Surface Elevation Source: Coulee Dam

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 727
Water Surface: (Calm) (Small Waves) (Whitecaps)
Surface Vegetation-Present: Yes
Was Vegetation Removed: Yes

Weather Conditions Upon Arrival
Temp (°F): 48°
Wind (mph): calm < 5
Clouds/Precipitation: sun breaking fog

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

Photo ID: 117-0487 Time: 11:04
Photo ID: 117-0488 Time: 11:04
Photo ID: 117-0489 Time: 11:04
Photo ID: 117-0490 Time: 11:04

General Notes:
completed (9) grabs all of which were unsuccessful.

C.R. - cultural resources

Field Supervisor Initials: J.O.A. Date: 10/17/13
Sample Lead Initials: J.O.A. Date: 10/17/13
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>2B-C1</td>
</tr>
</tbody>
</table>

**Anchor Point (max 3)**
1.  
2.  
3.  

**Drop #**
1.  
2.  
3.  

**Cast Time:** 11:05

**Sample Location:**
EASTING: 434669.37 (NAD 83 UTM Zone 11 North)  
NORTHING: 5416214.20

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO  
2. Overlying water present? YES NO  
3. Overlying water excessively turbid? YES NO  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO  
5. Desired penetration depth (4 to 6 inches) achieved? YES NO  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is:
   - Accepted
   - Rejected

### Porewater
Cumulative Percent of Porewater Syringe filled: ___%  
**Accepted**  
**Rejected**

**pH of Sediment in Sampler:** ___ su  
**Description:**

## Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Redox Boundary:**
- Present? YES NO  
- If present -- Depth Below Sediment Surface (inches):

**Odor:**
- None  
- Hydrogen sulfide  
- Other: ___

### Amphipods
- Presence: Yes No
- Tubes: ___
- Macrophytes: ___

### Debris (twigs/leaves):
- Presence: Yes No
- Other: ___

### Sample Collected Using
- **Sample ID Format:**
  - SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
  - SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
  - PW-1-B2: Pore Water at Station 1-B2

### Photo Numbers:
(see Photo Log for descriptions)
- **Sediment in Grab:** 11/7-0491  
- **Time:** 11:07

### Sediment (SE) Sample:
- Sample ID: ___  
- Time: ___  
- # Containers: ___  
- Volume: ___ %

### Duplicate SE Sample:
- Sample ID: ___  
- Time: ___  
- # Containers: ___  
- Volume: ___ %

### Split SE Samples (EPA/NPS/CCT):
- Sample ID: ___  
- Time: ___  
- # Containers: ___  
- Volume: ___ %

### Pore Water (PW) Sample:
- Sample ID: ___  
- Time: ___  
- # Containers: ___  
- Volume: ___ %

**Sample Lead Initials:** ___  
**Date:** 10/17/13  
**Field Supervisor Initials:** ___  
**Date:** 10/17/13

___
ursos
### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** ✗ **NO** ✓
2. Overlying water present? **YES** ✗ **NO** ✓
3. Overlying water excessively turbid? **YES** ✗ **NO** ✓
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** ✗ **NO** ✓
5. Desired penetration depth (4 to 6 inches) achieved? **YES** ✗ **NO** ✓
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** ✗ **NO** ✓
7. Sample is: **Accepted** ✗ **Rejected** ✓

### Porewater

- **Cumulative Percent of Porewater Syringe filled:** _%
- **pH of Sediment in Sampler:** _

### Sediment Characteristics

- **Type:**
  - % Silt: _ (<1/16 mm)
  - % Sand: _ (1/16 - 2 mm)
  - % Gravel: _
  - % Cobble: _
  - % Silica Glass: _

- **Color:** _
- **Munsell Color Chart #:** _
- **Description:** _

- **Redox Boundary:**
  - Present? **Yes** ✗ **No** ✓
  - If present – Depth Below Sediment Surface (inches): _

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other: _

### Amphipods:

- **Other:** _

### Debris (twigs/leaves):

- **Other:** _

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Photo Numbers'

- **Sediment in Grab:** _
- **Homogenized Sample:** _
- **Other:** _

### Sediment (SE) Sample ID:

- **Time:** _
- **Volume:** _
- **% Containers:** _

### Duplicate SE Sample ID:

- **Time:** _
- **Volume:** _
- **% Containers:** _

### Split SE Samples (EPA/NPS/CCT):

- **Time:** _
- **Volume:** _
- **% Containers:** _

### Pore Water (PW) Sample ID:

- **Time:** _
- **Volume:** _
- **% Containers:** _

---

**Sample ID Format:**
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189

Station Identifier: 2B-C1

Anchor Point (max 3) 1 2 3

Water Depth (feet): 37.2

Drop # 1 2 3 Cast Time 1114

Sampler Penetration (inches): Empty

Angle (< 5°max) Yes No

Cultural Resources Observed? No Yes

Sample Location: EASTING: 434686.34 NAD_83_UTM_Zone_11_North

NORTHING: 5412241.73

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected

pH of Sediment in Sampler: ______ su Description: __________

Sediment Characteristics

Type: % Silt (1/16 mm) Color: Munsell Color Chart #: Description:

% Sand (1/16 - 2 mm)

% Gravel

% Cobbles

% Silica Glass:

Amphipods: Debris (twigs/leaves):

Tubes: Other:

Macrophytes:

Sample Collected Using Van Veen Eckman Ponar Shovel

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Photo Numbers’ (see Photo Log for descriptions)

Sediment in Grab: 11T-0193 Time: 1114

Homogenized Sample:

Other:

Sediment (SE) Sample ID: Time: ___________ # Containers: _______ Volume: _______%

Duplicate SE Sample ID: Time: _______ # Containers: _______ Volume: _______%

Split SE Samples (EPA/NPS/CCT): Time: _______ # Containers: _______ Volume: _______%

Pore Water (PW) Sample ID: Time: _______ # Containers: _______ Volume: _______%

Sample Lead Initials: ______ Field Supervisor Initials: ______ Date: 10/17/13
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

### Project Number:

36310189

---

### Station Identifier:

2B-C1

---

### Anchor Point (max 3):

1  2  3

---

### Water Depth (feet):

38.0

---

### Drop #:

1  2  3  Cast Time: 1116

---

### Sampler Penetration (inches):

empty

---

### Cultural Resources Observed?

No

---

### Sample Location:

EASTING: 434532.67

---

### NORTING:

5412212.46

---

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

---

### Porewater

Cumulative Percent of Porewater Syringe filled: %

- Description: 

---

### pH of Sediment in Sampler:

su

---

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
</tr>
</thead>
</table>

- Color: Munsell Color Chart #:
- Description:
- Redox Boundary: Present? Yes No
- If present -- Depth Below Sediment Surface (inches): 

---

### Odor:

- None
- Hydrogen sulfide

---

### Amphipods:

- Debris (twigs/leaves):

---

### Tubes:

- Macrophytes:

---

### Stratified sediment:

Yes No

### Sheen Present:

Yes No

### Sample Collected Using:

- Van Veen
- Eckman
- Ponar
- Shovel

### Sediment in Grab:

Sediment in Grab: 117-0494

### Homogenized Sample:

- Time:

---

### # Containers:

### Volume:

---

### Split SE Samples (EPA/NPS/CCT):

- Time:

---

### # Containers:

### Volume:

---

### Pore Water (PW) Sample ID:

- Time:

---

### # Containers:

### Volume:

---

---

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:**

DALE: Date: 10/17/13

**Field Supervisor Initials:**

DALE: Date: 10/17/13

---

**U R S**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 2B-C1

**Anchor Point (max 3):** 1 2 3  
**Drop #:** 1 2 3  
**Cast Time:**  
**Angle (< 5° max):** Yes  
**No:**

**Sample Location:**

- **EASTING:** 439652.94  
- **NORTHING:** 5412201.24  

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES  
2. Overlying water present? YES  
3. Overlying water excessively turbid? YES  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES  
5. Desired penetration depth (4 to 6 inches) achieved? YES  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES  
7. Sample is: Accepted  

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**  
- **Accepted:**  
- **Rejected:**  

**pH of Sediment in Sampler:** Description:  

**Sediment Characteristics**

- **Type:**  
  - Silt:  
  - Sand:  
  - Gravel:  
  - Cobbles:  
  - Silica Glass:  

- **Color:** Munsell Color Chart #:  
  - Description:  

- **Redox Boundary:**  
  - Present?: Yes  
  - If present -- Depth Below Sediment Surface (inches):  

- **Odor:**  
  - None  
  - Hydrogen sulfide  
  - Other:  

**Amphipods:**

- Debris (twigs/leaves):  

**Sample Collected Using**

- **Van Veen:**  
- **Eckman:**  
- **Ponar:**  
- **Shovel:**  

**Photo Numbers's**

- **Sediment in Grab:**  
- **Homogenized Sample:**  
- **Other:**  

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%:**  

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%:**  

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:**  
**%:**  

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%:**  

**Sample Lead Initials:**  
**Date:** 04/07/13  
**Field Supervisor Initials:**  
**Date:** 04/07/13

Sample ID Format:
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Station Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>3B-C1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cast Time</td>
<td></td>
<td>11:24</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°/max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration (inches)</td>
<td>Empty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

| Sample Location: | EASTING: **434674.70** (NAD_83_UTM_Zone_11_North) |
|                 | NORTHING: **541219.47** |

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**

2. Overlying water present? **YES**

3. Overlying water excessively turbid? **YES**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**

5. Desired penetration depth (4 to 6 inches) achieved? **YES**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**

7. Sample is: **Accepted**

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>Rejected</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>su</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>Rejected</td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris(twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sample ID Format:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
</tr>
<tr>
<td>Eckman</td>
<td>SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)</td>
</tr>
<tr>
<td>Ponar</td>
<td>PW-1-B2: Pore Water at Station 1-B2</td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab: <strong>117-6496</strong></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: [X]  
Date: **10/17/13**  
Field Supervisor Initials: [X]  
Date: **10/17/13**  

**URS**
## Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes: **YES**, No: **NO**
2. Overlying water present?  
   - Yes: **YES**, No: **NO**
3. Overlying water excessively turbid?  
   - Yes: **YES**, No: **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes: **YES**, No: **NO**
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes: **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes: **YES**, No: **NO**
7. Sample is:  
   - Accepted, Rejected

---

### Porewater

- Cumulative Percent of Porewater Syringe filled:
  - Accepted
- pH of Sediment in Sampler:
  - Accepted

### Sediment Characteristics

- **Type:**
  - % Silt (1/16 mm)
  - % Sand (1/16 - 2 mm)
  - % Gravel
  - % Cobble
  - % Silica Glass

- **Color:**
  - Munsell Color Chart #:
  - Description:

- **Redox Boundary:**
  - Present?: Yes
  - Depth Below Sediment Surface (inches):

- **Odor:**
  - None
  - Other: Hydrogen sulfide

### Amphipods:

- **Debris (twigs/leaves):**

### Photo Numbers:

- (see Photo Log for descriptions)

---

### Sample Collected Using

- Van Veen
- Eckman
- Ponar
- Shovel

### Macrophytes:

- **Stratified sediment:** Yes
- **Sheen Present:** Yes

### Sediment (SE) Sample ID:

- Time:
- # Containers:
- Volume:

### Duplicate SE Sample ID:

- Time:
- # Containers:
- Volume:

### Split SE Samples (EPA/NPS/CCT):

- # Containers:
- Volume:

### Pore Water (PW) Sample ID:

- Time:
- # Containers:
- Volume:
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>Q8-2C1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>38.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>11:34</td>
<td>open due to cobbles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°/max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>[NAD_83_UTM_Zone_11_North]</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>434649.75</td>
</tr>
<tr>
<td>NORTING:</td>
<td>5412219.75</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES / NO**
2. Overlying water present? **YES / NO**
3. Overlying water excessively turbid? **YES / NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES / NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES / NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES / NO**
7. Sample is: **Accepted / Rejected**

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>su</th>
<th>Description:</th>
</tr>
</thead>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
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<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Other:</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes / No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes / No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab</td>
<td>Homogenized Sample</td>
</tr>
<tr>
<td>Eckman</td>
<td>Sediment in Grab</td>
<td>Homogenized Sample</td>
</tr>
<tr>
<td>Ponar</td>
<td>Sediment in Grab</td>
<td>Homogenized Sample</td>
</tr>
<tr>
<td>Shovel</td>
<td>Sediment in Grab</td>
<td>Homogenized Sample</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers 's</th>
<th>Time:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

Sample Lead Initials: [A] Date: 10/17/13 Field Supervisor Initials: [A] Date: 9/17/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>39.4</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>empty</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
<td>Cultural-Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

Sample Location: 
EASTING: 434,698.07 (NAD_83_UTM_Zone_11_North) 
NORTHING: 54,122,17.07

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   YES NO
2. Overlying water present?  
   YES NO
3. Overlying water excessively turbid?  
   YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   YES NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   YES NO
7. Sample is:  
   Accepted Rejected

Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>% Accepted Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su Description:</td>
</tr>
</tbody>
</table>

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods:  
Tubes:  
Other:  

Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
<th>Van Veen</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ponar</td>
<td>Other:</td>
</tr>
</tbody>
</table>

Shovel

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

Sample Lead Initials:  
Date: 10/17/13  
Field Supervisor Initials:  
Date: 10/17/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
## Photo Log

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>117-0486</td>
<td>10:57</td>
<td>MC</td>
<td></td>
<td>Site ID 2B-C1</td>
</tr>
<tr>
<td>117-0487</td>
<td>11:04</td>
<td>MC</td>
<td>North</td>
<td>Upstream of site</td>
</tr>
<tr>
<td>117-0488</td>
<td>11:04</td>
<td>MC</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>117-0489</td>
<td>11:04</td>
<td>MC</td>
<td>South</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>117-0490</td>
<td>11:04</td>
<td>West MC</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>117-0491</td>
<td>11:07</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #4, empty</td>
</tr>
<tr>
<td>117-0492</td>
<td>11:12</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #5, cobble</td>
</tr>
<tr>
<td>117-0493</td>
<td>11:16</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #3, cobble in jaw</td>
</tr>
</tbody>
</table>

**Project:** 36310189  
**Station Identifier:** 2B-C1  
**Vessel:** Mizuma

**Date:** 10/17/13  
**Camera Serial #:** 7A-2 Pennex

**Field Supervisor Initials:**  
**Date:** 10/17/13

**Sample Lead Initials:**  
**Date:** 10/17/13

**URS**
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>117-0494</td>
<td>11:18</td>
<td>MC</td>
<td></td>
<td>Rejected grab #4 empty</td>
</tr>
<tr>
<td>117-0495</td>
<td>11:22</td>
<td>MC</td>
<td></td>
<td>Rejected grab #5 empty</td>
</tr>
<tr>
<td>117-0496</td>
<td>11:25</td>
<td>MC</td>
<td></td>
<td>Rejected grab #6 empty</td>
</tr>
<tr>
<td>117-0497</td>
<td>11:30</td>
<td>MC</td>
<td></td>
<td>Rejected Sample grab #7 gravel/silt</td>
</tr>
<tr>
<td>117-0498</td>
<td>11:36</td>
<td>MC</td>
<td></td>
<td>Rejected grab #8 cobble in jaws</td>
</tr>
<tr>
<td>117-0499</td>
<td>11:40</td>
<td>MC</td>
<td></td>
<td>Rejected grab #9 empty</td>
</tr>
</tbody>
</table>
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/17/13
Sampling Crew: [Redacted]
EPA Observer: [Redacted]
Arrival Time: 0915

Station Identifier: 2B-C2
Vessel: Mazama
Vessel Crew: RT/CE/JP
C.R. Observer: B. Whist (NPS)
Departure Time: 1056

River Stage:
Water Surface Elev. (ft): 1286.5
Water Surface Elevation Source: Coulee Dam

Weather Conditions Upon Arrival
Temp (°F): 43°F
Wind (mph): calm < 5
Clouds/Precipitation: fog

Site Information:
Boat Position: Powered
River Mile: 227

Weather
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes
Was Vegetation Removed: Yes

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

River Current: (Swift) (Eddy) (Calm) (Ripple)
Boat Traffic: support boats

Sample Location Photo IDs:
(see Photo Log for descriptions)

Camera ID: TA-2 pentax

Photo ID: 117-0473 Time: 0915
Photo ID: 117-0474 Time: 0916
Photo ID: 117-0475 Time: 0916

General Notes:
completed (9) grabs, all unsuccessful. No sample collected sta 2B-C2.

C.R. - cultural resources

Field Supervisor Initials: [Redacted] Date: [Redacted]
Sample Lead Initials: [Redacted] Date: 10/17/13

URS
### Sediment/Porewater Sampling Form
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2B-C2</th>
</tr>
</thead>
</table>

**Anchor Point (max 3)**
- 2
- 3

**Drop #**
- 1
- 2
- 3

**Cast Time**
- 09:20

**Sampler Penetration (inches):**
- Empty

**Angle (< 5° max):**
- Yes
- No

**Sample Location:**
- Sampled at:
  - 434175, 60
  - NAD_83_UTM_Zone_11_North
  - EASTING: 434175.60
  - NORTING: 541191.01

<table>
<thead>
<tr>
<th>Sample Acceptance Criteria:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

**Porewater**
- Cumulative Percent of Porewater Syringe filled: ___%  
- pH of Sediment in Sampler: su  
- Description: ___

**Sediment Characteristics**
- Type:
  - % Silt: ___ (< 1/16 mm)
  - % Sand: ___ (1/16 - 2 mm)
  - % Gravel: ___
  - % Cobbles: ___
  - % Silica Glass: ___

<table>
<thead>
<tr>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redox Boundary:</td>
<td>If present - Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>Present? Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

- Odor: None  
- Hydrogen sulfide  
- Other: ___

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris (twigs/leaves):</th>
<th>Other:</th>
<th>Tubes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collected Using**
- Van Veen
- Eckman
- Ponar
- Shovel

**Photo Numbers**
- Sediment in Grab: 17-04-77  
- Time: 09:23
- Homogenized Sample:  
- Time:  
- Other: Time:

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** 
- Date: 10/7/13

**Field Supervisor Initials:** 
- Date: 10/7/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>28-C2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>77.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>0929</td>
<td>empty</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 434217.47 (NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>NORTHING: 5411922.96</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? (Answer: YES NO)
2. Overlying water present? (Answer: YES NO)
3. Overlying water excessively turbid? (Answer: YES NO)
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? (Answer: YES NO)
5. Desired penetration depth (4 to 6 inches) achieved? (Answer: YES NO)
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? (Answer: YES NO)
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __%  
  - Accepted  
  - Rejected

- pH of Sediment in Sampler: __ su Description: __

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Redox Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt &lt;1/16 mm</td>
<td>Munsell Color Chart #:</td>
<td>Present?</td>
</tr>
<tr>
<td>% Sand 1/16 - 2 mm</td>
<td>Description:</td>
<td>Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present - Depth Below</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

- None

**Debris (twigs/leaves):**

- None

**Tubes:**

- None

**Macrophytes:**

- None

**Photo Numbers'**

- (see Photo Log for descriptions)

- Sediment in Grab: 17-J-978  
  - Time: 0931

- Homogenized Sample:
  - Time:__

- Other:
  - Time:__

**Sediment (SE) Sample ID:** __  
  - Time:__  
  - # Containers:__  
  - Volume:__ %

**Duplicate SE Sample ID:** __  
  - Time:__  
  - # Containers:__  
  - Volume:__ %

**Split SE Samples (EPA/NPS/CCT):** __  
  - # Containers:__  
  - Volume:__ %

**Pore Water (PW) Sample ID:** __  
  - Time:__  
  - # Containers:__  
  - Volume:__ %

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** __  
  - Date: __/12/13

**Field Supervisor Initials:** __  
  - Date: __/17/13
**Sediment/Porewater Sampling Form**

Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189
**Station Identifier:** 2B-C2

**Sample Location:**
EASTING: 434215.73 (NAD_83_UTM_Zone_11_North)
NORTHING: 5411827.13

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**
Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected
pH of Sediment in Sampler: __ su Description: __

**Sediment Characteristics**
Type: __ % Silt __<1/16 mm> __% Sand __1/16 - 2 mm> __ % Gravel __ % Cobble __ % Silica Glass __
Color: Munsell Color Chart #: __

Redox Boundary: Present? YES NO
If present -- Depth Below Sediment Surface (inches): __

Odor: None Hydrogen sulfide Other: __

**Amphipods:**
Debris(twigs/leaves): Other: __

**Sample Collected Using**
Stratified sediment: YES NO
Sheen Present: YES NO

<table>
<thead>
<tr>
<th>Sample</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab: 01/17/2019 Time: 09:38</td>
<td>Homogenized Sample:</td>
<td>Other:</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers**
(see Photo Log for descriptions)

**Sediment (SE) Sample ID:** __ Time: __ # Containers: __ Volume: __ %
**Duplicate SE Sample ID:** __ Time: __ # Containers: __ Volume: __ %
**Split SE Samples (EPA/NPS/CCT):** __ Time: __ # Containers: __ Volume: __ %

**Pore Water (PW) Sample ID:** __ Time: __ # Containers: __ Volume: __ %

**Sample ID Format:**
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample ID Format: 36310189-2B-C2

Sample Lead Initials: __ Date: __ Field Supervisor Initials: __ Date: __

URS
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>76.8</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>0940</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**
- **EASTING:** 434193.09
- **NORTHING:** 5411926.54

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

**Porewater**
- Cumulative Percent of Porewater Syringe filled: **%**
- pH of Sediment in Sampler: **su**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Redox Boundary:**
- Present? **Yes**
- If present -- Depth Below Sediment Surface (inches): **No**

**Odor:**
- None
- Hydrogen sulfide
- Other: 

**Amphipods:**
- Debris (twigs/leaves): 
- Tubes: 
- Other: 

**Macrophytes:**
- Stratified sediment: **Yes**
- Sheen Present: **No**

**Sample Collected Using:**
- Van Veen
- Eckman
- Ponar
- Shovel

**Photo Numbers**
- Sediment in Grab: 112-0480
- Homogenized Sample: 0948

**Sample Lead Initials:** FR

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample ID Format:

<table>
<thead>
<tr>
<th>Sample ID Format:</th>
</tr>
</thead>
</table>

**Date:** 10/17/13

**Field Supervisor Initials:** OA

**Date:** 10/17/13

**URS**
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>2B - C2</td>
</tr>
</tbody>
</table>

**Anchor Point (max 3):**
- 1
- 2
- 3

**Water Depth (feet):** 748

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>09:45</td>
</tr>
</tbody>
</table>

**Sampler Penetration (inches):** empty

**Angle (< 5°/max):**
- Yes
- No

**Cultural Resources Observed?**
- No
- Yes

**Sample Location:**
- EASTING: 43147777
- NORTHING: 541192867

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

#### Porewater

- Cumulative Percent of Porewater Syringe filled: __%
- pH of Sediment in Syringe: __

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td>Munsell Color Chart #:</td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Present? No Yes</td>
</tr>
<tr>
<td>% Gravel</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Odor: None Hydrogen sulfide Other:</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Amphipods:
- Debris (twigs/leaves):
- Tubes:
- Macrophytes: Yes No

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Sheen Present:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Sediment in Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0081</td>
<td>Time: 09:48</td>
</tr>
</tbody>
</table>

**Photo Numbers:** (see Photo Log for descriptions)

**Sample Lead Initials:** [Signature]
**Date:** 07/13/13
**Field Supervisor Initials:** [Signature]
**Date:** 10/17/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 2B-C2  
**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):** 72  
**Drop #:** 1 2 3  
**Sample Location:** [NAD_83_UTM_Zone_11_North]  
**EASTING:** 434919.57  
**NORTHING:** 5411950.46  
**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**  
3. Overlying water excessively turbid? **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
7. Sample is:  
   - Accepted  
   - Rejected  

**Porewater**

- Cumulative Percent of Porewater Syringe filled: _____%  
- pH of Sediment in Sampler: _____  

**Sediment Characteristics**

- Type:  
  - % Silt: _____  
  - % Sand: _____  
  - % Gravel: _____  
  - % Cobble: _____  
  - % Silica Glass: _____  

- Color: Munsell Color Chart #:  
  - Description:  

- Redox Boundary:  
  - Present?: Yes  
  - If present -- Depth Below Sediment Surface (inches):  

- Odor:  
  - None  
  - Hydrogen sulfide  
  - Other:  

**Amphipods:**  
**Debris (twigs/leaves):**  
**Tubes:**  
**Macrophytes:**  
**Other:**  

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
<td>Sample Collected Using</td>
<td>Photo Numbers’s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Van Veen</td>
<td>Sediment in Grab: 17-0402 Time: 0953</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ponar</td>
<td>Other:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shovel</td>
<td>Time:</td>
</tr>
</tbody>
</table>

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:**  

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2  

Sample Lead Initials:  
Date: 10/17/13  
Field Supervisor Initials:  
Date: 10/17/13  

**URS**
### Project Number: 36310189
### Station Identifier: 2B-C2

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>0956</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5” max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration (inches)</td>
<td>Empty - Rock</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Location:
- Easting: 434221.57
- Northing: 5411914.96

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

#### Porewater
Cumulative Percent of Porewater Syringe filled: __%

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

#### Sediment Characteristics

- **Type:**
  - % Silt (1/16 mm)
  - % Sand (1/16 - 2 mm)
  - % Gravel
  - % Cobble
  - % Silica Glass

- **Color:** Munsell Color Chart #:
  - Description:

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

#### Amphipods: Tubes: Macrophytes:
- Debris(twigs/leaves):

#### Sample Collected Using
- Stratified sediment: Yes No
- Sheen Present: Yes No
- Sample ID Format: Van Veen
- Sediment in Grab: 0959
- Homogenized Sample: 0959
- Other:

#### Sediment (SE) Sample ID: Time: # Containers: Volume: %

#### Duplicate SE Sample ID: Time: # Containers: Volume: %

#### Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %

#### Pore Water (PW) Sample ID: Time: # Containers: Volume: %

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** 2B·C2

**Anchor Point (max 3):** 1 2 3  
**Drop #**: 1 2 3  
**Cast Time:** 1001  
**Water Depth (feet):** 72.3'

**Angle (< 5°max):** Yes  
**Cultural Resources Observed?:** No

**Sample Location:** (NAD 83 UTM Zone 11 North)  
**EASTING:** 434201.64  
**NORTHING:** 5411927.34

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**  
Cumulative Percent of Porewater Syringe filled: ___%  
**pH of Sediment in Sampler:** ___  
**Description:**

---

**Sediment Characteristics**

**Type:**
- % Silt  
- % Sand  
- % Gravel  
- % Cobbles  
- % Silica Glass:

**Color:**
- Munsell Color Chart #:
- Description:

**Redox Boundary:**
- Present? Yes No
- If present -- Depth Below Sediment Surface (inches):
- Hydrogen sulfide

**Odor:**
- None
- Other:

**Amphipods:**
- Debris (twigs/leaves):
- Other:

**Sample Collected Using:**
- Van Veen
- Eckman
- Ponar
- Shovel

**Sample Lead Initials:**  
**Date:** 06/17/13

---

**Macrophytes:**

**Stratified sediment:**
- Yes
- No

**Sheen Present:**
- Yes
- No

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Photo Numbers:**

**Date:** 06/17/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>2B-C2</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>93.7</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>10:07</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>Empty</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 439/61.36 (NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td></td>
<td>NORTHING: 541/285.65</td>
</tr>
</tbody>
</table>

Sample Location:

<table>
<thead>
<tr>
<th>Sample Acceptance Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample wastage?</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
</tr>
<tr>
<td>7. Sample is:</td>
</tr>
</tbody>
</table>

Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Present? Yes</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Sediment Surface (inches):</td>
<td>Other:</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor: None</td>
<td>Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: | Debris (twigs/leaves): | Other: |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment: Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
</table>

Sediment in Grab: 11/7-0485 | Time: 10:08 |
Homogenized Sample:  |
Other:  |

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: AR | Date: 10/17/13 |
Field Supervisor Initials: KA4 | Date: 10/17/13 |

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Photo Log

Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>117-0470</td>
<td>9:15</td>
<td>Site ID</td>
</tr>
<tr>
<td>117-0472</td>
<td>9:15</td>
<td>Upstream of site</td>
</tr>
<tr>
<td>117-0474</td>
<td>9:16</td>
<td>Left bank</td>
</tr>
<tr>
<td>117-0475</td>
<td>9:16</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>117-0476</td>
<td>9:16</td>
<td>Right bank</td>
</tr>
<tr>
<td>117-0477</td>
<td>9:31</td>
<td>Rejected grab #1</td>
</tr>
<tr>
<td>117-0478</td>
<td>9:32</td>
<td>Rejected grab #3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: DM  Date: 10/17/13  
Sample Lead Initials: GM  Date: 10/17/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>117-0480</td>
<td>9:43</td>
<td>MC</td>
<td></td>
<td>Rejected grab #4 cobble</td>
</tr>
<tr>
<td>117-0481</td>
<td>9:48</td>
<td>MC</td>
<td></td>
<td>Rejected grab #5 gravel/sand</td>
</tr>
<tr>
<td>117-0482</td>
<td>9:53</td>
<td>MC</td>
<td></td>
<td>Rejected grab #6 cobble</td>
</tr>
<tr>
<td>117-0483</td>
<td>9:59</td>
<td>MC</td>
<td></td>
<td>Rejected grab #7 cobble in saw</td>
</tr>
<tr>
<td>117-0484</td>
<td>10:04</td>
<td>MC</td>
<td></td>
<td>Rejected grab #8 few pieces gravel</td>
</tr>
<tr>
<td>117-0485</td>
<td>10:08</td>
<td>MC</td>
<td></td>
<td>Rejected grab #9 empty</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: AC Date: 10/17/13
Sample Lead Initials: PR Date: 10/4/17/13
**Sample Location Form**
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>28-C3</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Date:</th>
<th>Vessel:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/16/13</td>
<td>Nazama</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Sampling Crew:</th>
<th>EPA Observer:</th>
</tr>
</thead>
<tbody>
<tr>
<td>JR/BM/SM</td>
<td>M. Endo</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arrival Time:</th>
<th>Departure Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1305</td>
<td>1514</td>
</tr>
</tbody>
</table>

**River Stage:**
- Water Surface Elev. (ft): 1284.5
- Water Surface Elevation Source: Coulee Dam

**Site Information:**
- Boat Position: (Powered) (Anchored)
- River Mile: 7379 R 7216
- River Surface: (Calm) (Small Waves) ( Choppy)
- Water Vegetation Present: Yes No
- Vegetation Removed: Yes No

**Weather Conditions Upon Arrival:**
- Temp (°F): 64°
- Wind (mph): slight 5 mph
- Clouds/Precipitation: mostly sunny, few clouds

**Notable shore surface features:**
- rock outcrops, streams, wetlands, oxbows, cutbanks, roads, houses, campsites, construction, etc.

<table>
<thead>
<tr>
<th>Sample Location Photo IDs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(see Photo Log for descriptions)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>116-0458</td>
<td>1308</td>
</tr>
<tr>
<td>116-0460</td>
<td>1308</td>
</tr>
<tr>
<td>116-0462</td>
<td>1308</td>
</tr>
</tbody>
</table>

**C.R.: cultural resources**

Field Supervisor Initials: [Signature]
Date: 10/18/13

Sample Lead Initials: [Signature]
Date: 10/16/13
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

| Sample Location: | EASTING: 433706.04 (NAD_83_UTM_Zone_11_North) | NORTHING: 5411598.24 |

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
YES  
NO

2. Overlying water present?  
YES  
NO

3. Overlying water excessively turbid?  
YES  
NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
YES  
NO

5. Desired penetration depth (4 to 6 inches) achieved?  
YES  
NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
YES  
NO

7. Sample is:  
Accepted  
Rejected

**Porewater**

| Cumulative Percent of Porewater Syringe filled: | Accepted | Rejected |

| pH of Sediment in Sampler: | Description: |

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

| Color: | Munsell Color Chart #: | Description: |

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>None</td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris (twigs/leaves):</td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

| Stratified sediment: | Yes | No |
| Sheen Present: | Yes | No |

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Date: 04/16/13</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time: 1312</td>
</tr>
<tr>
<td>Ponar</td>
<td>Other:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Homogenized Sample:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Split SE Samples (EPANPS/CCT):</td>
<td>Time:</td>
</tr>
</tbody>
</table>

| Pore Water (PW) Sample ID: | Time: |

| Sample Lead Initials: | Date: 05/14/13 |
| Field Supervisor Initials: | Date: 09/18/13 |

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 26-c3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 37.5'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 13/16</td>
<td>Sampler Penetration (inches): &lt;4&quot; rock</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
</tr>
<tr>
<td>EASTING: 4337159.3</td>
<td>NORTING: 5411583.74</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
</tr>
<tr>
<td></td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td>If present -- Depth Below</td>
</tr>
<tr>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>Other:</td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves):
Tubes: Other

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Ponor</td>
</tr>
<tr>
<td>Shovel</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: K Date: 10/14/13 Field Supervisor Initials: OH Date: 10/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>39.4'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1318</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td></td>
<td>NAD 83 UTM Zone 11 North</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td>Rejected</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Porewater</th>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>_______%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>_______</td>
<td>su</td>
</tr>
<tr>
<td>Description:</td>
<td>___________</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Gravel</td>
<td>Redox Boundary:</td>
<td>Present?</td>
</tr>
<tr>
<td></td>
<td>% Cobble</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td></td>
<td>% Silica Glass</td>
<td>Odor:</td>
<td>None</td>
</tr>
<tr>
<td>Amphipods:</td>
<td>Tubes:</td>
<td>Macrophytes:</td>
<td></td>
</tr>
<tr>
<td>Debris (twigs/leaves):</td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stratified Sediment:</th>
<th>Yes</th>
<th>No</th>
<th>Sample Collected Using Van Veen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
<td>Eckman</td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td></td>
<td></td>
<td>116-0465</td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
<td></td>
<td>Time: 1320</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td></td>
<td></td>
<td>Time:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td></td>
<td># Containers:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td></td>
<td># Containers:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td></td>
<td></td>
<td># Containers:</td>
</tr>
</tbody>
</table>

| Sampling Lead Initials | Data: 10/16/13 | Field Supervisor Initials | Data: 10/18/13 |

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>28-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>26.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1324</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>&lt;4&quot; rock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83 UTM Zone 11 North)</td>
<td>EASTING:</td>
<td>433694.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NORTHING:</td>
<td>5411563.76</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___ su Description: ___

Sediment Characteristics

Type:  
- % Silt (1/16 mm) ___
- % Sand (1/16 - 2 mm) ___
- % Gravel ___
- % Cobble ___
- % Silicon Glass ___

Color: Munsell Color Chart #: ___
Description: ___

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): ___
Odor: None Hydrogen sulfide
Other: ___

Amphipods: ___
Tube: ___
Macrophytes: ___

Sample Collected Using
Van Veen ___
Eckman ___
Ponar ___
Shovel ___

Photo Numbers 's
(see Photo Log for descriptions)
Sediment in Grab: 116-0466 Time: 13:27
Homogenized Sample: ___
Other: ___

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ Time: ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample Lead Initials ___ Date: 10/16/13 Field Supervisor Initials ___ Date: 10/18/13

URS
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 8B - C3  
**Anchor Point (max 3):** 1 (2) 3  
**Water Depth (feet):** 50.1  
**Drop #:** 1 (2) 3  
**Cast Time:** 329  
**Sampler Penetration (inches):** Empty  
**Angle (< 5° max):** Yes  
**Cultural Resources Observed?** No  
**Sample Location:**  
- **EASTING:** 433718.09  
- **NORTHING:** 5411606.88  
- **(NAD 83 UTM Zone 11 North)**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Accepted: Yes  
   - Rejected: No

2. Overlying water present?  
   - Accepted: Yes  
   - Rejected: No

3. Overlying water excessively turbid?  
   - Accepted: Yes  
   - Rejected: No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Accepted: Yes  
   - Rejected: No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Accepted: Yes  
   - Rejected: No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Accepted: Yes  
   - Rejected: No

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**  
  - Accepted:  
  - Rejected:  

- **pH of Sediment in Sampler:**  
  - Accepted:  
  - Rejected:  

- **Description:**

**Sediment Characteristics**

- **Type:**  
  - % Silt:  
  - % Sand:  
  - % Gravel:  
  - % Cobbles:  
  - % Silica Glass:  

- **Color:**  
  - Munsell Color Chart #:  
  - Description:

- **Redox Boundary:**  
  - Present?: Yes  
  - No

- **Sediment Surface (inches):**

**Amphipods:**

- Debris (twigs/leaves):
- Other:

**Sample Collected Using**

- Van Veen
- Eckman
- Poner
- Shovel

**Photo Numbers’ (see Photo Log for descriptions)***

- Sediment in Grab:  
  - Time:  
  - # Containers:  
  - Volume:  

- Homogenized Sample:  
  - Time:  
  - # Containers:  
  - Volume:  

- Other:  
  - Time:  
  - # Containers:  
  - Volume:  

- Sediment (SE) Sample ID:  
  - Time:  
  - # Containers:  
  - Volume:  

- Duplicate SE Sample ID:  
  - Time:  
  - # Containers:  
  - Volume:  

- Split SE Samples (EPA/NPS/CCT):  
  - Time:  
  - # Containers:  
  - Volume:  

- Pore Water (PW) Sample ID:  
  - Time:  
  - # Containers:  
  - Volume:  

**Sample Lead Initials:**  
**Date:** 10/16/13  
**Field Supervisor Initials:**  
**Date:** 11/18/13  

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 28-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 80.1</td>
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<tr>
<td>1 2 3</td>
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<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>Sampler Penetration (inches): empty</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? Yes No</td>
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<tr>
<td>Sample Location:</td>
<td></td>
</tr>
<tr>
<td>EASTING: 433635.82</td>
<td>NORTHING: 5411605.50</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected
pH of Sediment in Sampler: Description:

Sediment Characteristics
<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Munsell Color Chart #: Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary: Present? Yes No If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves): Tubes: Macrophytes:

Sample Collected Using
<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sheen Present: Yes No</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Poner</th>
<th>Shovel</th>
<th>Sediment in Grab: 116-0468 Time: 1336</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Lead Initials: Date: 10/14/13
Field Supervisor Initials: ON Date: 9/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310169</th>
<th>Station Identifier:</th>
<th>28-c3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>39.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
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</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td>EASTING:</td>
<td>433661.57</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ____% Accepted Rejected
pH of Sediment in Sampler: _____ su Description: __________

Sediment Characteristics
<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Present?</td>
<td>Yes No</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves): Tubes: Macrophytes: Other:__

Sample Collected Using
<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab: 116-0469 Time: 13:41</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td>Ponor</td>
<td>Other:</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Time:</td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td></td>
<td># Containers:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td># Containers:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td># Containers:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td></td>
<td># Containers:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: __________ Date: 01/16/13 Field Supervisor Initials: __________ Date: 01/16/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
# Sediment/Porewater Sampling Form

Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

## Project Number:
36310189

## Station Identifier:
88-C3

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1343</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Water Depth (feet)</th>
<th>36.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampler Penetration (inches):</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources Observed?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

## Sample Location:
433665.84 (NAD_83_UTM_Zone_11_North)
5411567.82

## Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?
   - YES
   - NO

2. Overlying water present?
   - YES
   - NO

3. Overlying water excessively turbid?
   - YES
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?
   - YES
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?
   - YES
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?
   - YES
   - NO

7. Sample is:
   - Accepted
   - Rejected

## Porewater

- Cumulative Percent of Porewater Syringe filled: 100%
- Accepted
- Rejected

## pH of Sediment in Sampler:
- UR su
- Description:

## Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- (<1/16 mm)
- (1/16 - 2 mm)

- Redox Boundary: Present?
  - Yes
  - No

- Odor: None
  - Hydrogen sulfide

## Amphipods:
- Debris (twigs/leaves):
- Other:

## Sample Collected Using
- Van Veen
- Eckman
- Ponor
- Shovel

## Sediment Sample ID:
SE-DB1C
Time: 14:50
# Containers: 4/1
Volume: 100/21

## Duplicate SE Sample ID:
Time:
# Containers: 
Volume:

## Split SE Samples (EPA/NPS/CCT):
Time:
# Containers: 
Volume:

## Pore Water (PW) Sample ID:
PW-DB1C
Time: 14:40
# Containers: 3
Volume: 100

Sample Lead Initials: [Signature]
Date: 10/16/13
Field Supervisor Initials: [Signature]
Date: 09/18/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>2B-C3</td>
<td>34.8</td>
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<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>34.8</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1344</td>
<td>Empty</td>
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<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>Sample Acceptance Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 433670.84</td>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
</tr>
<tr>
<td>NORTING: 5411567.60</td>
<td>2. Overlying water present? YES NO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Acceptance Criteria:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Porewater</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Color: Munsell Color Chart #: | 5Y 3/2 |
| Description: |

| Redox Boundary: | Present? | No |

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
</tr>
</thead>
</table>

| Debris (twigs/leaves): | Tubes: | Macrophytes: |

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers &quot;s (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td>Other:</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

Sample Lead Initials: 9/11/13  Field Supervisor Initials: 9/11/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>116-0458</td>
<td>1306</td>
<td>STA 1D</td>
</tr>
<tr>
<td>116-0459</td>
<td>1308</td>
<td>UP RIVER</td>
</tr>
<tr>
<td>116-0460</td>
<td>1308</td>
<td>EAST SHORE</td>
</tr>
<tr>
<td>116-0461</td>
<td>1308</td>
<td>DOWN RIVER</td>
</tr>
<tr>
<td>116-0462</td>
<td>1308</td>
<td>WEST SHORE</td>
</tr>
<tr>
<td>116-0463</td>
<td>1312</td>
<td>GRAB #1, EMPTY</td>
</tr>
<tr>
<td>0116-0464</td>
<td>1317</td>
<td>GRAB #2, EMPTY</td>
</tr>
<tr>
<td>0116-0465</td>
<td>1326</td>
<td></td>
</tr>
</tbody>
</table>
## Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 2B-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/16/13</td>
<td>Vessel: Mazama</td>
</tr>
<tr>
<td>Camera Serial #: 7700a pentax</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>016-0465</td>
<td>1326</td>
<td>grab #8 empty</td>
</tr>
<tr>
<td>016-0466</td>
<td>1327</td>
<td>grab #4 empty</td>
</tr>
<tr>
<td>116-0467</td>
<td>1331</td>
<td>grab #5 empty</td>
</tr>
<tr>
<td>116-0468</td>
<td>1336</td>
<td>grab #6 empty</td>
</tr>
<tr>
<td>116-0469</td>
<td>1341</td>
<td>grab #7 empty</td>
</tr>
<tr>
<td>116-0471</td>
<td>1449</td>
<td>grab #8 homogenized, SE</td>
</tr>
</tbody>
</table>

Field Supervisor Initials:  
Date: 10/18/13

Sample Lead Initials:  
Date: 10/16/13
Project Number: 36310189
Date: 10/24/13
Station Identifier: 2B - C4
Vessel: MIZARIA
Sampling Crew: VEITTO, MARTIN, BURMA
Vessel Crew: TRUDEAU, COLLINS, BIBBY
EPA Observer: LOPEZ
C.R. Observer: BILL WHITE, NPS, SQUATCHIN, CDT
Arrival Time: 0857
Departure Time: 0920
River Stage:
Water Surface Elev. (ft):
Water Surface Elevation Source:
Weather Conditions Upon Arrival
Temp (F): 42
Wind (mph): <5
Clouds/Precipitation: Party Cloudy
Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 728
Water Surface: (Calm) Small Waves (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No
Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, riffles, roads, houses, campsites, construction, etc.)
Sample Location Photo IDs:
(see Photo Log for descriptions)
Photo ID: 123 - 0807 Time: 0857 Photo ID: 123 - 0808 Time: 0857
Photo ID: 123 - 0809 Time: 0857 Photo ID: 123 - 0810 Time: 0857
General Notes:
- pore water collected using white + blue airstones
- chemistry sample collected from AP2 Day 3
- sample collected at
  THIS STATION
C.R. - cultural resources
Field Supervisor Initials: OH Date: 01/24/13
Sample Lead Initials: MV Date: 01/24/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 2B-C4

**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):** 61.7

**Drop #:** 2 3  
**Cast Time:** 0901

**Angle (< 5° max)**: Yes  
**Sampler Penetration (inches):** Undetermined/No Ascent

**Cultural Resources Observed?** No Yes

**Sample Location:**  
**EASTING:** 435628.34  
**NORTHING:** 57413149.42  
**UTM Zone:** 11 North

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>su</th>
<th>Description:</th>
</tr>
</thead>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td>Redox Boundary: Present? Yes No</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>If present -- Depth Below</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>Sediment Surface (inches):</td>
</tr>
</tbody>
</table>

**Amphipods:**  
**Debris (twigs/leaves):**  
**Tubes:**  
**Other:**  
**Macrophytes:**

**Sample Collected Using**  
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eckman</td>
<td>Time:</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Homogenized Sample: Time:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Other: Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

| Duplicate SE Sample ID:  | Time: | # Containers: | Volume: | % |

| Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: | % |

| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: | % |

**Sample Lead Initials:** M  
**Date:** 10/24/13  
**Field Supervisor Initials:** O H  
**Date:** 10/24/13

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: 2B-4
Anchor Point (max 3) 2 3  Water Depth (feet): 44.5
Drop # 1 2 3 Cast Time 20:41
Angle (< 5°max) Yes No Cultural Resources Observed? No Yes
Sample Penetration (inches): Incomplete/No Recovery

Sample Location:
EASTING: 435709.93 NORTING: 5413183.78

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Cumulative Percent of Porewater Syringe filled:

pH of Sediment in Sampler: __________ su

Sediment Characteristics
Type: % Silt __________ (c1/16 mm)
% Sand __________ (1/16 - 2 mm)
% Gravel __________
% Cobbles __________
% Silica Glass __________

Color: Munsell Color Chart #: __________
Description: __________
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): __________
Odor: None Hydrogen sulfide
Other: __________

Amphipods: __________
Tubes: __________
Macrophytes: __________
Debris (twigs/leaves): __________
Other: __________

Sample Collected Using
Van Veen Eckman
Sheen Present: Yes No
Ponar
Shovel
Sediment in Grab: __________ Time: __________
Homogenized Sample: __________ Time: __________
Other: __________ Time: __________

SEDIMENT (SE) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %
Duplicate SE Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %
Split SE Samples (EPA/NPS/CCT): __________ Time: __________ # Containers: __________ Volume: __________ %
Pore Water (PW) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %

Sample Lead Initials: PW Date: 10/24/13
Field Supervisor Initials: CS Date: 10/24/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>42.4</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>0907</td>
</tr>
<tr>
<td>Angle (&lt; 5’max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

#### Sample Location:
- **EASTING:** 435593.53  
- **NORTHING:** 5213196.50

**Sample Acceptance Criteria:**
1._sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

#### Porewater
- Cumulative Percent of Porewater Syringe filled: ___  
  Accepted Rejected
- pH of Sediment in Sampler: ___ su  
  Description: ___

#### Sediment Characteristics
- **Type:** % Silt (1/16 mm)  
- % Sand (1/16 - 2 mm)  
- % Gravel  
- % Cobble 
- % Silica Glass:

- **Color:** Munsell Color Chart #:  
  Description: ___
- **Redox Boundary:** Yes No  
  Present? Y N
  If present -- Depth Below Sediment Surface (inches):

- **Odor:** None Hydrogen sulfide

#### Amphipods:
- Debris (twigs/leaves):
- Tubes:
- Macrophytes:

#### Sample Collected Using
- **Sample Collected Using** Van Veen 
  Eckman
- **Ponar**
- **Shovel**

#### Photo Numbers’
(see Photo Log for descriptions)
- **Sediment in Grab:** Time:
- **Homogenized Sample:** Time:
- **Other:** Time:
- **Sediment (SE) Sample ID:** Time:  
  # Containers:  
  Volume: ___ %
- **Duplicate SE Sample ID:** Time:  
  # Containers:  
  Volume: ___ %
- **Split SE Samples (EPA/NPS/CCT):**  
  # Containers:  
  Volume: ___ %
- **Pore Water (PW) Sample ID:** Time:  
  # Containers:  
  Volume: ___ %

**Sample Lead Initials:** NW  
**Date:** 10/21/13  
**Field Supervisor Initials:** AN  
**Date:** 10/24/13

---

**Sample ID Format:**
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>43.91</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>0409</td>
<td>Sampler Penetration (inches):</td>
<td>Unmeasurement/No Recovery</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

#### Sample Location:
- EASTING: 435579.38 (NAD_83_UTM_Zone_11_North) NORTING: 5413166.13

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

#### Porewater
- Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected
- pH of Sediment in Sampler: __ su Description: __

#### Sediment Characteristics
- **Type:** % Silt __ (>1/16 mm)
- % Sand __ (1/16 - 2 mm)
- % Gravel __
- % Cobbles __
- % Silica Glass __
- **Color:** Munsell Color Chart #: Description: __
- **Redox Boundary:** Present? Yes No
- If present -- Depth Below Sediment Surface (inches): __
- **Odor:** None Hydrogen sulfide Other: __

#### Amphipods:
- Debris (twigs/leaves): __
- Tubes: __
- Macrophytes: __
- Other: __

#### Sample Collected Using
- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

#### Photo Numbers’
(see Photo Log for descriptions)
- Sediment in Grab: __ Time: __ # Containers: __ Volume: __ %
- Homogenized Sample: __ Time: __ # Containers: __ Volume: __ %
- Other: __ Time: __ # Containers: __ Volume: __ %

#### Sediment (SE) Sample ID: __ Time: __ # Containers: __ Volume: __ %
#### Duplicate SE Sample ID: __ Time: __ # Containers: __ Volume: __ %
#### Split SE Samples (EPA/NPS/CCT): __ Time: __ # Containers: __ Volume: __ %
#### Pore Water (PW) Sample ID: __ Time: __ # Containers: __ Volume: __ %

---

**Sample Lead Initials:** __
**Date:** 10/24/13
**Field Supervisor Initials:** __
**Date:** 10/24/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
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<tbody>
<tr>
<td>Station Identifier:</td>
<td>2B-C4</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
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<tr>
<td>Water Depth (feet):</td>
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<td>Drop #</td>
<td>1 2 3 Cast Time: 0912</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>&lt;3&quot;</td>
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<tr>
<td>Angle (&lt; 5°max):</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
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<tr>
<td>Sample Location:</td>
<td>NAD_83_UTM_Zone_11_North</td>
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<tr>
<td>EASTING:</td>
<td>435604.21</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5413155.63</td>
</tr>
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</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

### Porewater

- Cumulative Percent of Porewater Syringe filled: ____%
- pH of Sediment in Sampler: _______ su
- Description: _______

### Sediment Characteristics

- **Type**: % Silt, % Sand, % Gravel, % Cobbles, % Silica Glass
  - <1/16 mm
  - 1/16 - 2 mm
  - 80%
  - 75% silty sand
- **Color**: Munsell Color Chart #
- **Description**: _______
- **Redox Boundary**: Present? **Yes** **No**
- **If present -- Depth Below Sediment Surface (inches)**: _______
- **Odor**: None Hydrogen sulfide

### Amphipods:

- Debris/twigs/leaves: _______
- Sample Collected Using: Van Veen
- Tubes: _______
- Other: _______
- Macrophytes: _______

### Stratified Sediment:

- Yes No
- Sheen Present: Yes No
- Sediment in Grab: _______
- Ponar: _______
- Homogenized Sample: _______
- Shovel: _______
- Other: _______

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

Sample Lead Initials: _______  
Date: 8/24/13  
Field Supervisor Initials: _______  
Date: 9/24/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310180</th>
<th>Station Identifier:</th>
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<tr>
<td>Anchor Point (max 3)</td>
<td>1 (2) 3</td>
<td>Water Depth (feet):</td>
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<td>Drop #</td>
<td>1 2 3</td>
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<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes No</td>
<td>Sampler Penetration (inches):</td>
<td>5</td>
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<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
<td></td>
<td></td>
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<tr>
<td>Sample Location:</td>
<td>435613.00 (NAD_83_UTM_Zone_11_North)</td>
<td>NORTING:</td>
<td>5413153.72</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **MINIMAL Winnowing at top** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **MINIMAL** **NO**
7. Sample is: **Accepted** **Rejected**

#### Porewater
- Cumulative Percent of Porewater Syringe filled: **100%**
- Description: **Air-dried - white - blue**

#### pH of Sediment in Sampler: **Neutral**

#### Sediment Characteristics
- Type:
  - % Silt: **<1/16 mm**
  - % Sand: **25** (%1/16 - 2 mm)
  - % Gravel: **<1/16 mm**
  - % Cobbles: **<1/16 mm**
  - % Silica Glass: **<1/16 mm**
- Color:
  - Munsell Color Chart #: **10YR 2/1**
  - Description: **Black**
- Redox Boundary: **Present?** **Yes** **No**

#### Amphipods:
- Debris (twigs/leaves):
  - Sample Collected Using:
    - Van Veen
    - Eckman
    - Ponar
    - Shovel
  - Macrophytes:

#### Sediment (SE) Sample ID: **SE-2B-C4** Time: **0952**
- # Containers: **4/1**
- Volume: **4,105% 1-50%**
- Sediment in Grab: **125-0586** Time: **0917**
- Homogenized Sample: **125-0520** Time: **0945**
- Others: **125-0519** Time: **0917**

#### Duplicate SE Sample ID: **SE-2B-C4** Time: **0952**
- # Containers: **=**
- Volume: **=**

#### Split SE Samples (EPA/NPS/CCT):
- # Containers: **=**
- Volume: **=**

#### Pore Water (PW) Sample ID: **PW-2B-C4** Time: **0927**
- # Containers: **3**
- Volume: **100%**

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: **MW** Date: **10/24/13**
Field Supervisor Initials: **SF** Date: **10/24/13**

---

44 gallons in Sample bucket
<table>
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<th>Photographer</th>
<th>Photo Orientation</th>
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<tbody>
<tr>
<td>123-0806</td>
<td>0839</td>
<td>2B-C4</td>
<td>MW</td>
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<td>123-0807</td>
<td>0857</td>
<td>North of station 2B-C4</td>
<td>MW</td>
<td>North</td>
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<td>123-0808</td>
<td>0857</td>
<td>East share @ 2B-C4</td>
<td>MW</td>
<td>East</td>
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<tr>
<td>123-0809</td>
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<td>South of 2B-C4</td>
<td>MW</td>
<td>South</td>
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<tr>
<td>123-0810</td>
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<td>West shore @ 2B-C4</td>
<td>MW</td>
<td>West</td>
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</tr>
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<td>0906</td>
<td>EMPTY GRAB API DROP 2</td>
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<td>0914</td>
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<td>AP2 Drop 1</td>
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<td>123-0816</td>
<td>0919</td>
<td>Sediment in GRAB</td>
<td>123-0817</td>
<td>0926</td>
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<td>AP2 Drop 3</td>
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<td>123-0819</td>
<td>0947</td>
<td>Homogenized Sediment</td>
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<td>123-0821</td>
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<td>Collecting Sediment Sample</td>
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Field Supervisor Initials: CA Date: 10/24/15
Sample Lead Initials: MV Date: 10/24/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 28-RI

Date: 10/17/13
Sampling Crew: JR/BL/NC

EPA Observer: M. Endo

Arrival Time: 1228

Vessel: Mazama
Vessel Crew: RT/NC/GP
C.R. Observer: B. White

Departure Time: 1428

River Stage: Water Surface Elev. (ft): 1286.5
Water Surface Elevation Source: Coulee Dam

Weather Conditions Upon Arrival
Temp (°F): 60
Wind (mph): calm < 5
Clouds/Precipitation: mostly sunny

Site Information:
Boat Position: (Powered) (Anchored)
River Mile:
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes (No)
Was Vegetation Removed: Yes (No)

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Weather Conditions Upon Arrival
Temp (°F): 60
Wind (mph): calm < 5
Clouds/Precipitation: mostly sunny

Site Information:
Boat Position: (Powered) (Anchored)
River Mile:
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes (No)
Was Vegetation Removed: Yes (No)

River Current: (Swift) (Eddies) (Calm) (Ripple)
Boat Traffic: support boats

Sample Location Photo IDs:
(see Photo Log for descriptions)

Photo ID: 117-0501 Time: 1228
Photo ID: 117-0502 Time: 1228
Photo ID: 117-0503 Time: 1228
Photo ID: 117-0504 Time: 1228

General Notes:
complete (5) grabs, grabs #3 and #5 accepted, prior to screen ~ 10% gravel, 85% fine-medium sand, 5% silt, post screen ~ 95% f-m sand, 5% silt.

C.R. - cultural resources
Field Supervisor Initials: CE Date: 10/17/13
Sample Lead Initials: QK Date: 10/17/13

URS
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
</tr>
</thead>
</table>

**Station Identifier:** 2B-R1

**Anchor Point (max 3):** 1 2 3

**Drop #:** 1 2 3

**Cast Time:** 12:34

**Water Depth (feet):** 47.9′

**Sampler Penetration (inches):** Empty

**Cultural Resources Observed?** No

**Sample Location:** EASTING: 435464.48  [NAD_83_UTM_Zone_11_North]  NORTHING: 541294.28

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

| Cumulative Percent of Porewater Syringe filled: || Accepted | Rejected |
|------------------------------------------|--------|----------|
| pH of Sediment in Sampler: | | | |

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
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</thead>
<tbody>
<tr>
<td>Color: Munsell Color Chart #:</td>
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<td></td>
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<table>
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<th>Redox Boundary:</th>
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</table>

<table>
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<th>Odor:</th>
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<table>
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<th>Amphipods:</th>
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</table>

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Tubes:</th>
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<table>
<thead>
<tr>
<th>Macrophytes:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
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<table>
<thead>
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<th>Sheen Present: Yes No</th>
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<table>
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<th>Sediment (SE) Sample ID:</th>
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<table>
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<th>Time:</th>
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</table>

<table>
<thead>
<tr>
<th># Containers:</th>
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<table>
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<th>Volume:</th>
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<th>Duplicate SE Sample ID:</th>
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<th>Volume:</th>
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<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
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<table>
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<tr>
<th># Containers:</th>
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<table>
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<tr>
<th>Volume:</th>
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</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Time:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th># Containers:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Volume:</th>
</tr>
</thead>
</table>

### Amphipods:

- No

### Debris (twigs/leaves):

- No

### Tubes:

- No

### Macrophytes:

- No

### Stratified sediment:

- Yes

### Sheen Present:

- Yes

### Sediment (SE) Sample ID:

- Time:

### Duplicate SE Sample ID:

- Time:

### Split SE Samples (EPA/NPS/CCT):

- Time:

### Pore Water (PW) Sample ID:

- Time:

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** 

- AM: Date: 10/17/13

**Field Supervisor Initials:** 

- OA: Date: 10/17/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

**Station Identifier:** 2B-R1

**Anchor Point (max 3):** 1 2 3

**Drop #:** 1 2 3

**Cast Time:** 12:39

**Sampler Penetration (inches):** *empty*

**Angle (< 5°max):** Yes

**Cultural Resources Observed?** No Yes

**Sample Location:**

- **EASTING:** 43551250 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 54129917.65

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is:
   - Accepted
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __________
- Accepted
- Rejected

**pH of Sediment in Sampler:** __________

**Sediment Characteristics**

- **Type:**
  - % Silt: __________ (1/16 mm)
  - % Sand: __________ (1/16 - 2 mm)
  - % Gravel: __________
  - % Cobbles: __________
  - % Silica Glass: __________

- **Color:**
  - Munsell Color Chart #: __________
  - Description: __________

- **Redox Boundary:**
  - Present? __________
  - If present - Depth Below Sediment Surface (inches): __________

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other: __________

- **Amphipods:**
  - Other:

- **Tubes:**
  - Other:

- **Macrophytes:**

- **Debris (twigs/leaves):**
  - Other:

**Sample Collected Using**

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

- **Sediment in Grab:**
  - Homogenized Sample: __________
  - Other: __________

- **Photo Numbers: (see Photo Log for descriptions)**
  - 117-0806
  - Time: 12/4/08

- **Sediment (SE) Sample ID:** __________
  - Time: __________
  - # Containers: __________
  - Volume: __________ %

- **Duplicate SE Sample ID:** __________
  - Time: __________
  - # Containers: __________
  - Volume: __________ %

- **Split SE Samples (EPA/NPS/CCT):** __________
  - # Containers: __________
  - Volume: __________ %

- **Pore Water (PW) Sample ID:** __________
  - Time: __________
  - # Containers: __________
  - Volume: __________ %

**Sample Lead Initials:** __________

**Date:** 10/1/13

**Field Supervisor Initials:** __________

**Date:** 10/1/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 2B-R1

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Cast Time</th>
<th>Angle (&lt; 5°max)</th>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

- **EASTING:** [NAD_83_UTM_Zone_11_North] 1335000.05
- **NORTHING:** 5412968.55

**Sample Location:**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**
- **pH of Sediment in Sampler:**

**Sediment Characteristics**

- **Type:**
  - % Silt: 5 (c<1/16 mm)
  - % Sand: 85 (1/16 - 2 mm)
  - % Gravel: 10
  - % Cobbles:  
  - % Silica Glass:  

- **Color:** Munsell Color Chart #: [Description:]

- **Redox Boundary:**
  - Present? **Yes**
  - If present -- Depth Below Sediment Surface (inches):  

- **Odor:**
  - None
  - Other: Hydrogen sulfide

**Amphipods:**

- **Debris (twigs/leaves):**

**Tubes:**

- **Other:**

**Macrophytes:**

- **Stratified sediment:** **Yes**
- **Sheen Present:** **Yes**

**Sample Collected Using**

- **Van Veen:**  
- **Eckman:**  
- **Ponar:**  
- **Shovel:**  

**Photo Numbers:**

(see Photo Log for descriptions)

**Sample Lead Initials:** [Initials]  
**Date:** 10/17  
**Field Supervisor Initials:** [Initials]  
**Date:** 10/17/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2B-R1
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1251
Angle (< 5° max) Yes No
Sample Location:
EASTING: 435503.12
NORTHING: 5412968.83

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___ su Description:

Sediment Characteristics
Type: % Silt (1/16 mm) Color: Munsell Color Chart #: Description:
% Sand (1/16 - 2 mm) Redox Boundary: Present? Yes No
% Gravel If present - Depth Below Sediment Surface (inches):
% Cobbles
% Silica Glass:

Amphipods:
Debris (twigs/leaves):
Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Macrophytes:

Sample Lead Initials: Date:
Field Supervisor Initials: Date:

Photo Numbers’ s
Sediment in Grab: 117-6568 Time: 1254
Homogenized Sample: Time:
Other: Time:

# Containers:
Volume: %

Split SE Samples (EPA/NPS/CCT):
# Containers:
Volume: %
Pore Water (PW) Sample ID:
# Containers:
Volume: %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>476.6'</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>6.11</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 435497.03 NAD_83 UTM_ZONE_11N North</td>
</tr>
<tr>
<td>NORTING: 5412971.17</td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Cultural Resources Observed? **No**
8. Sample is: **Accepted**

#### Porewater

- Cumulative Percent of Porewater Syringe filled: 100% **Accepted**
- pH of Sediment in Sampler: 7.5
- Description: **Accepted**

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>95</td>
<td>Redox Boundary:</td>
<td>Present? <strong>Yes</strong></td>
</tr>
<tr>
<td>% Gravel</td>
<td>5</td>
<td>Sediment Surface (inches):</td>
<td>Depth Below</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**
- Debris (twigs/leaves):
- Sample Collected Using Van Veen
- Eckman
- Ponar
- Shovel

**Tubes:**
- Other:

**Macrophytes:**
- Stratified sediment: **No**
- Sheen Present: **No**
- Sediment in Grab: **Other:**
- Homogenized Sample: **Other:**

**Photo Numbers**

- U7-0569 Time: 130.2
- U7-0510 Time: 134.8

#### Sediment (SE) Sample ID: SE-2B-R1 Time: 1343 # Containers: 4/2 Volume: 9% 100%

#### Duplicate SE Sample ID: Time: # Containers: Volume: %

#### Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %

#### Pore Water (PW) Sample ID: PW-2B-A Time: 1328 # Containers: 3 Volume: 100%

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2  

Sample Lead Initials: **JG**  
Date: 10/17/13  
Field Supervisor Initials: **JH**  
Date: 10/17/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>117-0500</td>
<td>12:27</td>
<td>MC</td>
<td></td>
<td>2B-R1</td>
</tr>
<tr>
<td>117-0501</td>
<td>12:28</td>
<td>MC</td>
<td>North</td>
<td></td>
</tr>
<tr>
<td>117-0502</td>
<td>12:28</td>
<td>MC</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>117-0503</td>
<td>12:28</td>
<td>MC</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>117-0504</td>
<td>12:28</td>
<td>MC</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>117-0505</td>
<td>12:28</td>
<td>MC</td>
<td></td>
<td>Rejected grab #1 empty</td>
</tr>
<tr>
<td>117-0506</td>
<td>12:42</td>
<td>MC</td>
<td></td>
<td>Rejected grab #2</td>
</tr>
<tr>
<td>117-0507</td>
<td>12:46</td>
<td>MC</td>
<td></td>
<td>SE sample grab #3</td>
</tr>
</tbody>
</table>
### Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N7-0508</td>
<td>10:54</td>
<td>MC</td>
<td></td>
<td>Rejected - wood grab #4</td>
</tr>
<tr>
<td>N7-0507</td>
<td>13:42</td>
<td>MC</td>
<td></td>
<td>homogenized sample grabs #3 &amp; #5</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: KDL Date: 10/17/13
Sample Lead Initials: JFL Date: 10/17/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2B-R3
Date: 10/16/13
Vessel: Mazama
Sampling Crew: RR/AM/SM
Vessel Crew: Tudeau/Colling/Posey
EPA Observer: M. Endo
C.R. Observer: R. Depuyet
Arrival Time: 1059
Departure Time: 

River Stage:
Water Surface Elev. (ft): 1286.5
Weather Conditions Upon Arrival
Temp (°F): 55
Water Surface Elevation Source:
Cougaret Dam
Wind (mph): calm < 5
Clouds/Precipitation: mostly sunny

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 231
River Current: (Swift) (Eddie) (Calm) (Ripple)
Water Surface: (Calm) (Small Waves) (Choppy)
Boat Traffic: support boats
Surface Vegetation Present: Yes No
white and pumpkin dorys
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outlets, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)
Sampler ID: #12 2B-R3
Camera ID: Olympus 86w 521380
Photo ID: 13 Time: 1058
Photo ID: 19 Time: 1058
Photo ID: 15 Time: 1058
Photo ID: 16 Time: 1058

General Notes:

C.R. - cultural resources
Field Supervisor Initials: XH Date: 10/18/13
Sample Lead Initials: JR Date: 10/16/13

URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: BC-13</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3) 1 2 3</th>
<th>Water Depth (feet): 77.8'</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Drop # 1 2 3</th>
<th>Cast Time 1102</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max) Yes No</th>
<th>Sampler Penetration (inches): empty</th>
</tr>
</thead>
</table>

**Sample Location:**

- **EASTING:** 433881.97 (NAD83_UTM_Zone_11_North)
- **NORTING:** 541725.39

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: NR su</td>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td>Redox Boundary: Present? Yes No</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

**Amphipods:**

- Debris (twigs/leaves): Other:

<table>
<thead>
<tr>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
<td>Sediment in Grab: 17 Time: 1106</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td>Homogenized Sample: Other:</td>
</tr>
<tr>
<td></td>
<td>Ponor</td>
<td>Time:</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Lead Initials:</td>
<td></td>
<td>Field Supervisor Initials: KOA</td>
<td></td>
</tr>
</tbody>
</table>

**Sample ID Format:**

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>78.5'</td>
</tr>
<tr>
<td>Drop # 1 2 3</td>
<td>Cast Time:</td>
<td>Reporter:</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5' max) Yes No</td>
<td>Cultural Resources Observed? Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 433902.29</td>
<td>NORTHING: 5411755.33</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

| Cumulative Percent of Porewater Syringe filled: | Accepted | Rejected |
| su | | |

**pH of Sediment in Sampler:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (0-1/16 mm)</th>
<th>Color: Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Redox Boundary:</td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td>Yes No</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris/leaves:</th>
<th>Sample Collected Using</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Photo Numbers'**

(see Photo Log for descriptions)

| Sediment in Grab: | 18 | Time: | 1112 |
| Homogenized Sample: | Time: | |
| Other: | Time: | |

**Sediment (SE) Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

Sample Lead Initials: M  Date: 10/16/13
Field Supervisor Initials: ON  Date: 10/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>86.4'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1113</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td>EASTING:</td>
<td>433863.91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NORTING:</td>
<td>5411739.96</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Slit</td>
<td>(1/16 mm)</td>
<td></td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris/twigs/leaves:</th>
<th>Tube:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sheen Present: Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td>Sheen</td>
<td>Ponnar</td>
</tr>
<tr>
<td>Shovel</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Photo Numbers 's**

(see Photo Log for descriptions)

**Sample Lead Initials:** P

**Date:** 10/16/13

**Field Supervisor Initials:** X

**Date:** 10/16/13

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>26-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td></td>
<td>Water Depth (feet):</td>
<td>79.5'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>11:23</td>
</tr>
<tr>
<td>Angle (&lt; 5'max)</td>
<td>Yes</td>
<td>Nn</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td>[NAD_83_UTM_Zone_11_North]</td>
<td></td>
</tr>
<tr>
<td>Easting:</td>
<td>433918.06</td>
<td>Northing:</td>
<td>5711728.67</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted
   - Rejected

#### Porewater

- Cumulative Percent of Porewater Syringe filled:  
  - Accepted  
  - Rejected

- pH of Sediment in Sampler:  
  - Description:

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

- Color: Munsell Color Chart #:
- Description:
- Redox Boundary: Present?  
  - Yes  
  - No
- If present: Depth Below Sediment Surface (inches):  
  - Other:

- Odor: None
- Hydrogen sulfide

#### Amphipods:

#### Debris (twigs/leaves):

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Sample Collected Using

- Van Veen
- Eckman
- Ponor
- Shovel

#### Photo Numbers: (see Photo Log for descriptions)

- Sediment in Grab:  
  - Time: 11:27

- Homogenized Sample:  
  - Time:  

- Other:  
  - Time:

#### Sediment (SE) Sample ID:  
- Time:  
- # Containers:  
- Volume:  

#### Duplicate SE Sample ID:  
- Time:  
- # Containers:  
- Volume:  

#### Split SE Samples (EPA/NPS/CCT):  
- # Containers:  
- Volume:  

#### Pore Water (PW) Sample ID:  
- Time:  
- # Containers:  
- Volume:  

Sample Lead Initials:  
Date: 10/16/13

Field Supervisor Initials:  
Date: 10/18/13

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>QB-R3</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>56.3'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 (2) 3</td>
<td>Cast Time</td>
<td>11:29</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 433900.83</td>
<td>NORTHING: 5411692.72</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted Rejected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Porewater

Cumulative Percent of Porewater Syringe filled:  
Accepted Rejected

pH of Sediment in Sampler: su Description:

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color: Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Present? Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th></th>
<th>If present -- Depth Below Sediment Surficial (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Cobbles</th>
<th>Odor: None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Silica Glass</th>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

**Debris (twigs/leaves):**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Sheen Present:</th>
<th>Ponor</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
</table>

### Photo Numbers (see Photo Log for descriptions)

| 1132 | 1127 |

### Sediment (SE) Sample ID: Time:  
# Containers: Volume: 

### Duplicate SE Sample ID: Time:  
# Containers: Volume: 

### Split SE Samples (EPA/NFS/CCT):  
# Containers: Volume: 

### Pore Water (PW) Sample ID: Time:  
# Containers: Volume: 

Sample Lead Initials: AR  
Date: 10/16/13  
Field Supervisor Initials: X  
Date: 10/15/13
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2B - R5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3 Water Depth (feet): 84.6</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 11:33</td>
<td>Sampler Penetration (inches): &lt;4&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5'max) Yes No Cultural Resources Observed? Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location: NAD 83 UTM Zone 11 North</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present? YES NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid? YES NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved? YES NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is: Accepted Rejected</td>
<td></td>
</tr>
</tbody>
</table>

### Porewater

| Cumulative Percent of Porewater Syringe filled: 100% |
| Accepted Rejected |

| pH of Sediment in Sampler: 7.5 |
| Description: |

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type: % Silt (1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td>Redox Boundary: Present?</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>If present -- Depth Below</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

### Amphipods: Debris/twigs/leaves: Other: |

### Sample Collected Using

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: |
|------------------------------------|------|--------------|--------|

### Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: |
|----------------------------------|------|--------------|--------|

Sample Lead Initials: 29 Date: 10/16/13 Field Supervisor Initials: DA Date: 09/21/13

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**URS**
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2A-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>8.13</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>11:39</td>
</tr>
<tr>
<td>Angle (&lt; 5°max):</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Penetration (inches):</td>
<td>&lt;4&quot; cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING:</td>
<td>433867.25</td>
<td>NORTHING:</td>
<td>5411251.25</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**
Cumulative Percent of Porewater Syringe filled: ___%  
Accepted Rejected

pH of Sediment in Sampler: _____ su Description: __________

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

Color: Munsell Color Chart #: Description: __________
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): __________
Odor: None Hydrogen sulfide
Other: __________

**Amphipods:**

**Debris (twigs/leaves):**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Collected Using**

| Van Veen | Eckman | Ponor | Shovel |

**Photo Numbers'**

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogenized Sample:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

Sample Lead Initials: [X] Date: 1/16/13  
Field Supervisor Initials: [X] Date: 1/18/13

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2B-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 8.7</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1145</td>
<td>Sampler Penetration (inches): empty</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

**Sample Location:**  
EASTING: 433877.86  NORTHING: 5411774.78

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  Accepted Rejected

pH of Sediment in Sampler: ___ su Description: ___

**Sediment Characteristics**

Type: % Silt (<1/16 mm) Munsell Color Chart #: ___

% Sand (1/16 - 2 mm) Description: ___

% Gravel ___ Redox Boundary: Present? Yes No

% Cobble ___ If present -- Depth Below Sediment Surface (inches):

% Silica Glass ___ Odor: None Hydrogen sulfide Other: ___

**Amphipods:**

**Debris (twigs/leaves):**

Sample Collected Using: Van Veen Eckman Ponar Shovel Other: ___

Sediment in Grab: ___ Homogenized Sample: ___

Photo Numbers' ___

(see Photo Log for descriptions)

**Sample Lead Initiation Date:** 10/16/17  **Field Supervisor Initials:** DH  Date: 19/1/13

**URS**
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>B - R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>94.6</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1152</td>
</tr>
<tr>
<td>Angles (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>433875 20</td>
<td>(NAD 83_UTM_Zone_11_North)</td>
<td>541757 06</td>
</tr>
</tbody>
</table>

## Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

## Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler: su</th>
<th>Description:</th>
</tr>
</thead>
</table>

## Sediment Characteristics

<table>
<thead>
<tr>
<th>% Slit (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td>Redox Boundary: Present?</td>
<td>Yes</td>
</tr>
<tr>
<td>% Cobble</td>
<td>Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>Odor: None</td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

## Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Macrophycota:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
<td>Van</td>
</tr>
<tr>
<td>Other:</td>
<td>Shovel</td>
<td>Homogenized Sample:</td>
</tr>
</tbody>
</table>

## Photo Numbers:

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Collected Using:</td>
<td>Photo Numbers 's:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: X  
Date: 0/10/13  
Field Supervisor Initials: X  
Date: 10/13/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Photo Log
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 2B-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/16/13</td>
<td>Vessel: Mazama</td>
</tr>
<tr>
<td>Camera Serial #: 8S1380 olympus</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#12</td>
<td>1057</td>
<td>JR</td>
<td></td>
<td>STA ID 2B-R3</td>
</tr>
<tr>
<td>#13</td>
<td>1058</td>
<td>MC</td>
<td>North</td>
<td>Up river of 2B-R3</td>
</tr>
<tr>
<td>#14</td>
<td>1058</td>
<td>MC</td>
<td>East</td>
<td>East shore 2B-R3</td>
</tr>
<tr>
<td>#15</td>
<td>1058</td>
<td>MC</td>
<td>South</td>
<td>Down river 2B-R3</td>
</tr>
<tr>
<td>#16</td>
<td>1058</td>
<td>MC</td>
<td>West</td>
<td>West shore 2B-R3</td>
</tr>
<tr>
<td>#17</td>
<td>1106</td>
<td>MC</td>
<td></td>
<td>Grab #1</td>
</tr>
<tr>
<td>#18</td>
<td>1112</td>
<td>MC</td>
<td></td>
<td>Grab #2</td>
</tr>
<tr>
<td>#19</td>
<td>1117</td>
<td>MC</td>
<td></td>
<td>Grab #3</td>
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Field Supervisor Initials: AD  Date: 10/18/13
Sample Lead Initials:  JR  Date: 10/16/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>#20</td>
<td>11:27</td>
<td>grab #4</td>
</tr>
<tr>
<td>#21</td>
<td>11:32</td>
<td>grab #5</td>
</tr>
<tr>
<td>#22</td>
<td>11:36</td>
<td>grab #6</td>
</tr>
<tr>
<td>#23</td>
<td>11:43</td>
<td>grab #7</td>
</tr>
<tr>
<td>#24</td>
<td>11:48</td>
<td>grab #8</td>
</tr>
<tr>
<td>#25</td>
<td>11:56</td>
<td>grab #9</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: CA  Date: 10/16/13
Sample Lead Initials: JR  Date: 10/16/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/16/13
Sampling Crew: OR/RM/MS
EPA Observer: M. Endo
Arrival Time: 0914
River Stage: Water Surface Elev. (ft): 1286.5
Water Surface Elevation Source: Coulee Dam
Station Identifier: 2B-R4
Vessel: Mazama
Vessel Crew: Trudeau
C.R. Observer: R. Deniguet
Departure Time: 1050
Weather Conditions Upon Arrival
Temp (°F): 48
Wind (mph): calm
Clouds/Precipitation: mostly cloudy

Site Information:

Boat Position: (Powered) (Anchored)
River Mile: 7.31
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes (No)
Wet Vegetation Removed: Yes (No)

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
<th>Photo ID</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>116-6455</td>
<td>0918</td>
<td>TA-2 pentax</td>
<td>116-6456</td>
<td>0918</td>
</tr>
<tr>
<td>116-6457</td>
<td>0918</td>
<td>TA-2 pentax</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General Notes:

C.R. - cultural resources

Field Supervisor Initials: [Signature] Date: 10/18/13
Sample Lead Initials: [Signature] Date: 10/15/13

URS
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B - R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>69.7'</td>
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<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>0916</td>
</tr>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

**Sample Location:**
- EASTING: 433377.54
- NORTHING: 5414827.7

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**
- Cumulative Percent of Porewater Syringe filled: __%  
- Accepted Rejected
- pH of Sediment in Sampler: NR su  
- Description: __________

**Sediment Characteristics**
- Type: % Silt (<1/16 mm)  
- % Sand (1/16 - 2 mm)  
- % Gravel  
- % Cobbles  
- % Silica Glass  
- Color: Munsell Color Chart #: __________  
- Description: __________

**Amphipods:**
- Debris (twigs/leaves): __________

**Tubes:**
- Other: __________

**Macrophytes:**
- __________

**Sample Collected Using**
- Stratified sediment: Yes No  
- SheenPresent: Yes No  
- Van Veen  
- Eckman  
- Ponor  
- Shovel  
- Other: __________

**Photo Numbers 's**
- (see Photo Log for descriptions)  
- Sediment in Grab: __________  
- Homogenized Sample: __________  
- Other: __________

| Sediment (SE) Sample ID: | __________ | Time: __________ | # Containers: __________ | Volume: __________ % |
| Duplicate SE Sample ID: | __________ | Time: __________ | # Containers: __________ | Volume: __________ % |
| Split SE Samples (EPA/NPS/CCT): | __________ | Time: __________ | # Containers: __________ | Volume: __________ % |
| Pore Water (PW) Sample ID: | __________ | Time: __________ | # Containers: __________ | Volume: __________ % |

**Sample Lead Initials:** __________
**Date:** 10/16/13  
**Field Supervisor Initials:** __________
**Date:** 10/18/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bibassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2E-R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>70</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>0927</td>
</tr>
<tr>
<td>Angle (&lt; 6°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Penetration (inches):</td>
<td>empty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD_83 UTM Zone_11 North</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING:</td>
<td>433398.15</td>
<td>NORTING:</td>
<td>5411477.93</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? | YES NO |
2. Overlying water present? | YES NO |
3. Overlying water excessively turbid? | YES NO |
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | YES NO |
5. Desired penetration depth (4 to 6 inches) achieved? | YES NO |
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | YES NO |
7. Sample is: | Accepted Rejected |

**Porewater**

Cumulative Percent of Porewater Syringe filled: __ __%

pH of Sediment in Sampler: __ __su Description: __ __

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td>(1/16 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris (twigs/leaves):</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Sample Collected Using**

| Stratified sediment: | Yes | No |
| Sheen Present: | Yes | No |
| Sample ID: | | |
| Time: | | |
| # Containers: | | |
| Volume: | | |
| Sediment in Grab | | |
| Time: | | |
| Homogenized Sample | | |
| Time: | | |
| Other: | | |
| Time: | | |
| Sediment (SE) Sample ID: | | |
| Time: | | |
| # Containers: | | |
| Volume: | | |
| Duplicate SE Sample ID: | | |
| Time: | | |
| # Containers: | | |
| Volume: | | |
| Split SE Samples (EPA/NPS/CCT): | | |
| Time: | | |
| # Containers: | | |
| Volume: | | |
| Pore Water (PW) Sample ID: | | |
| Time: | | |
| # Containers: | | |
| Volume: | | |

Sample Lead Initiator: | Date: 6/16/13 | Field Supervisor Initiator: | Date: 9/18/13 |

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 28-R4</th>
<th>Water Depth (feet): 65'8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>Cast Time</td>
<td>09:25</td>
<td>Sampler Penetration (inches): Empty</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes, No, Yes</td>
<td>Cultural Resources Observed? No, Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td></td>
</tr>
<tr>
<td>EASTING: 433 354.51</td>
<td>NORTHING: 541 1490.25</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected
pH of Sediment in Sampler: NR su Description: __

Sediment Characteristics
<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Present? Yes No</td>
<td>If present: Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves): Tubes: Other: Macrophytes:
Sample Collected Using
Stratified sediment: Yes No
Sheen Present: Yes No
Van Veen
Eckman
Ponar
Shovel
Sediment in Grab: 0183 Time: 09:32
Homogenized Sample: Time: Other: Time:
Sediment (SE) Sample ID: __ Time: __ # Containers: __ Volume: __ %
Duplicate SE Sample ID: __ Time: __ # Containers: __ Volume: __ %
Split SE Samples (EPA/NPS/CCT): __ Time: __ # Containers: __ Volume: __ %
Pore Water (PW) Sample ID: __ Time: __ # Containers: __ Volume: __ %

Sample Lead Initials ___ Date: 10/10/13 Field Supervisor Initials ___ Date: 10/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
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<tbody>
<tr>
<td>36310189</td>
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<table>
<thead>
<tr>
<th>Station Identifier:</th>
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<tbody>
<tr>
<td>2B-R4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
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<tbody>
<tr>
<td>1 2 3</td>
<td>49.2</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>09:29</td>
<td>Empty</td>
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<table>
<thead>
<tr>
<th>Angie (&lt; 5' max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 433329.26 (NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>NORTHING: 5411442.95</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
</tr>
</thead>
<tbody>
<tr>
<td>____%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/18 mm)</th>
<th>Color: Munsell Color Chart #:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand (1/16 - 2 mm)</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present?</td>
</tr>
<tr>
<td></td>
<td>If present -- Depth Below</td>
</tr>
<tr>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th>Odor:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Cobbles</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>% Silica Glass:</th>
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</thead>
<tbody>
<tr>
<td></td>
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### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Tubes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Sheen Present:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Sediment in Grab:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pore</td>
<td>Eckman</td>
<td></td>
<td>0184</td>
<td>09:27</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Homogenized Sample:</th>
<th>Other:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
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### Photo Numbers 's

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
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</table>

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
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<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
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</table>

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
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### Sample Lead Initials: **JR**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Field Supervisor Initials:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/16/13</td>
<td>10/18/13</td>
<td></td>
</tr>
</tbody>
</table>
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>74.5</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>9 3 4</td>
<td>Sampler Penetration (inches):</td>
<td>empty</td>
</tr>
<tr>
<td>Angle (&lt;5° max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

#### Sample Location:

<table>
<thead>
<tr>
<th>EASTING</th>
<th>433358.20</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTHING</td>
<td>511445.53</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

#### Porewater:

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

| pH of Sediment in Sampler: | ur | Description: |

#### Sediment Characteristics:

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
</table>

| Redox Boundary:  
<table>
<thead>
<tr>
<th>Present?</th>
<th>Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
</tbody>
</table>

| Odor:  
<table>
<thead>
<tr>
<th>None Hydrogen sulfide</th>
</tr>
</thead>
</table>

| Amphipods:  
<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Other:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

#### Sample Collected Using:

| Stratified sediment: Yes No | Van Veen | Eckman |
| Sheen Present: Yes No | Ponor | Shovel |

| Sediment in Grab: | Time: |
| Homogenized Sample: | Time: |

| Other: |
| Time: |

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

| Sample Lead Initials: | Date: 10/16/13 | Field Supervisor Initials: | Date: 10/18/13 |

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>61.2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>0937</td>
</tr>
<tr>
<td>Angle (&lt; 5*max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>[NAD_83 UTM Zone_11_North]</td>
<td>EASTING:</td>
<td>433348.45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NORTHING:</td>
<td>5411409.35</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  
Acceptor Rejected  

pH of Sediment in Sampler: NR su  
Description: __________

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>&lt;1/16 mm</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Present? Yes No</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Van Veen</td>
<td>Sediment in Grab: 0186</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Eckman</td>
<td>Time: 0948</td>
</tr>
<tr>
<td></td>
<td>Ponor</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Sediment (SE) Sample ID:**  
Time:  
# Containers:  
Volume: 
%  

**Duplicate SE Sample ID:**  
Time:  
# Containers:  
Volume: 
%  

**Split SE Samples (EPA/NPS/CCT):**  
Time:  
# Containers:  
Volume: 
%  

**Pore Water (PW) Sample ID:**  
Time:  
# Containers:  
Volume: 
%

Sample Lead Initialed:  
Date: 10/16/13  
Field Supervisor Initialed:  
Date: 10/18/13

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** 28-R4  
**Anchor Point (max 3):** 1, 2, 3  
**Water Depth (feet):** 76.5′

**Drop #:** 1, 2, 3  
**Cast Time:** 09:41  
**Sampler Penetration (inches):** empty  
**Cultural Resources Observed?** Yes

---

**Sample Location:**  
**EASTING:** 4333400.17  
**NORTHING:** 5411438.59  
(NAD_83_UTM_Zone_11_North)

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**

2. Overlying water present?  
   - **YES**  
   - **NO**

3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   - **YES**  
   - **NO**

5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**

7. Sample is:  
   - Accepted  
   - Rejected

---

**Porewater**  
**Cumulative Percent of Porewater Syringe filled:**  
**Accepted**  
**Rejected**  
**pH of Sediment in Sampler:** NR  
**Description:**

---

**Sediment Characteristics**  
**Type:**  
**% Silt**  
**(1/16 mm)**

**% Sand**  
**(1/16 - 2 mm)**

**% Gravel**  
**% Cobble**  
**% Silica Glass**

**Color:** Munsell Color Chart #:  
**Description:**

---

**Redox Boundary:**  
**Present?** Yes  
**No**  
**If present -- Depth Below Sediment Surface (inches):**

---

**Odor:** None  
**Other:** Hydrogen sulfide

---

**Amphipods:**  
**Debris (twigs/leaves):**

---

**Tubes:**

---

**Macrophytes:**

---

**Sample Collected Using**  
**Van Veen**  
**Eckman**  
**Ponar**  
**Shovel**

**Sediment in Grab:**  
**Homogenized Sample:**  
**Other:**

**Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:**

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**

---

**Sample Lead Initials:**  
**Date:** 10/16/13  
**Field Supervisor Initials:** OX  
**Date:** 10/18/13

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: J8-R4
Anchor Point (max 3) 1 2 3 Water Depth (feet): 44.81
Drop # 1 2 3 Cast Time 09:51 Sampler Penetration (inches): Empty
Angle (< 5°max) Yes No Cultural Resources Observed? No Yes
Sample Location: EASTING: 433339.98 NORTING: 511428.16

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: _______%

pH of Sediment in Sampler: MR su Description: ___________

Sediment Characteristics
Type: % Silt ________ (<1/16 mm)
% Sand ________ (1/16 - 2 mm)
% Gravel ________
% Cobbles ________
% Silica Glass: ________

Color: Munsell Color Chart #: ________
Description: ________
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): ________
Odor: None Hydrogen sulfide Other: ________

Amphipods: ________
Debris (twigs/leaves): ________

Sample Collected Using
Van Veen ________
Eckman ________
Ponar ________
Shovel ________

Other: ________

Sample Lead Initials: ________ Date: 10/16/13 Field Supervisor Initials: ________ Date: 10/18/13

Photo Numbers 's
(see Photo Log for Descriptions)
Sediment in Grab: 0188 Time: 0958
Homogenized Sample: ________ Time: ________
Other: ________ Time: ________

Split SE Samples (EPA/NPS/CCT): ________ # Containers: ________ Volume: ________ %

Pore Water (PW) Sample ID: ________ Time: ________ # Containers: ________ Volume: ________ %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2B-R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>58.5'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>empty</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD_83 UTM Zone_11 North</td>
<td>EASTING:</td>
<td>433342.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NORTHING:</td>
<td>5411443.01</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (complete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___ su Description: ___

Sediment Characteristics
Type: % Silt (1/16 mm) % Sand (1/16 - 2 mm) % Gravel
% Cobbles % Silica Glass
Color: Munsell Color Chart #: Description: Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods: Tubes: Macrophytes:
Debris (twigs/leaves): Other:

Stratified sediment: Yes No (see Photo Log for descriptions)
Sheen Present: Yes No
Sample Collected Using
Van Veen Eckman
Ponar Shovel
Sediment in Grab: Time: Homogenized Sample: Time: Other: Time:

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ Time: ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample Lead Initials: ___ Date: 10/16/13 Field Supervisor Initials: ___ Date: 10/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>#118-0453</td>
<td>0918</td>
<td>STA 2B-R4 ID</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td>116-0454</td>
<td>0918</td>
<td>Grab #1 empty</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td>116-0455</td>
<td>0918</td>
<td>Upriver from STA 2B-R4</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td>116-0456</td>
<td>0918</td>
<td>East shore from STA 2B-R4</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td>116-0457</td>
<td>0918</td>
<td>Downriver from 2B-R4</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td>0181</td>
<td>0924</td>
<td>Grab #1 empty</td>
<td>JR</td>
<td></td>
</tr>
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<td>0182</td>
<td>0928</td>
<td>Grab #2 empty</td>
<td>JR</td>
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</tr>
<tr>
<td>0183</td>
<td>0932</td>
<td>Grab #3 empty</td>
<td>JR</td>
<td></td>
</tr>
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</table>
### Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 36310180</th>
<th>Station Identifier: 2B-R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/16/13</td>
<td>Vessel: MAXIMA</td>
</tr>
<tr>
<td>Camera Serial #:</td>
<td></td>
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</table>

<table>
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<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0184</td>
<td>0937</td>
<td>JR</td>
<td></td>
<td>Grab #4, a little sand</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0185</td>
<td>0942</td>
<td>JR</td>
<td></td>
<td>Grab #5, empty</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>0186</td>
<td>0948</td>
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<td>Grab #6, empty</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0187</td>
<td>0953</td>
<td>JR</td>
<td></td>
<td>Grab #7, empty</td>
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<tr>
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<td></td>
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<tr>
<td>0188</td>
<td>0958</td>
<td>JR</td>
<td></td>
<td>Grab #8, empty</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: LA  Date: 10/18/13
Sample Lead Initials:       Date:    

URS
Sample Location Form
Upper Columbia River RIFS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: J-Cl

Date: 10/19/13

Sampling Crew: McGly, Skaggs, Thelma
Vessel: Murray

EPA Observer: Monica Thomas
Vessel Crew: Collins, Trudell, Posz

Arrival Time: 09:05
C.R. Observer: Eric Olschewski, Yoss

River Stage:
Water Surface Elev. (ft): ___________________________
Water Surface Elevation Source: ___________________________

Weather Conditions Upon Arrival
Temp (°F): 47
Wind (mph): Calm
Clouds/Precipitation: Fog

Site Information:

Boat Position: Powered (Anchored) River Mile: 73

Water Surface: Calm (Small Waves) (Choppy)
Surface Vegetation Present: Yes
River Current: (Swift) (Eddy) (Calm) (Ripple)
Water Surface: Choppy

Notable shore surface features:
rock outcrops, streams, wetlands, oxbows, cattails, roads, houses, campsites, construction, etc.

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photo ID</th>
<th>Time</th>
</tr>
</thead>
</table>

Camera ID: Pentax

General Notes:
Acceptable grabs on drops 1's. Cylindricrater was accidentally blended into the two samples. Additional grabs were attempted and an acceptable grab was obtained on the 715 grab used for the sample.

C.R. - cultural resources
Field Supervisor Initials: /DH Date: 10/29/13
Sample Lead Initials: /S Date: 10/19/13
## Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>2-C1</td>
<td>Drop # 1 2 3 Cast Time 09 17</td>
<td>13.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Angle (&lt; 5° max) Yes</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? | YES | NO |
2. Overlying water present? | YES | NO |
3. Overlying water excessively turbid? | YES | NO |
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | YES | NO |
5. Desired penetration depth (4 to 6 inches) achieved? | YES | NO |
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | YES | NO |
7. Sample is: | Accepted | Rejected |

### Porewater

Cumulative Percent of Porewater Syringe filled: _% | Accepted | Rejected |

pH of Sediment in Sampler: _ | Munsell Color Chart #: | Description: |

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td>(&lt;1/16 mm)</td>
<td></td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

Debris (twigs/leaves):

Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sample Collected Using</td>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td>Shovel</td>
</tr>
<tr>
<td>Photo Numbers' s (see Photo Log for descriptions)</td>
<td>Sediment in Grab:</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td>Sediment in Grab:</td>
<td>Time:</td>
</tr>
<tr>
<td>Time:</td>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Time:</td>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID: | Time: | # Containers: | Volume: |
### Duplicate SE Sample ID: | Time: | # Containers: | Volume: |
### Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: |
### Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: |

Sample Lead Initials: | Date: | Field Supervisor Initials: | Date: |

**Sample ID Format:**

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

**Urs**
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 2-01

- **Anchor Point (max 3)**: 1, 2, 3  
- **Drop #**: 1, 2, 3  
- **Cast Time**: 0912

**Sample Location:** 431841.41, 5415846.88

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:** 90%  
- **pH of Sediment in Sampler:** 7.2

**Sediment Characteristics**

- **Type:**  
  - % Silt  
  - % Sand: 5C (1/16 - 2 mm)  
  - % Gravel  
  - % Cobbles  
  - % Silica Glass

- **Color:** Munsell Color Chart #: Description:

- **Redox Boundary:**  
  - Present? **Yes**
  - If present -- Depth Below Sediment Surface (inches):  
  - Odor: **None**, Hydrogen sulfide

**Amphipods:**

**Debris (twigs/leaves):**

**Tubes:**

**Other:**

**Macrophytes:**

- **Stratified sediment:** **Yes**
- **Sheen Present:** **Yes**

**Sample Collected Using:**

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**
- **Other**

**Photo Numbers:**

(see Photo Log for descriptions)

- **Sediment in Grab:** 114-0388  
- **Homogenized Sample:**
- **Other:**

**Sediment (SE) Sample ID:**

- **Time:**  
- **# Containers:**
- **Volume:**
- **%**

**Duplicate SE Sample ID:**

- **Time:**  
- **# Containers:**
- **Volume:**
- **%**

**Split SE Samples (EPA/NPS/CCT):**

- **Time:**  
- **# Containers:**
- **Volume:**
- **%**

**Pore Water (PW) Sample ID:**

- **Time:**  
- **# Containers:**
- **Volume:**
- **%**

**Sample Lead Initials:**  
**Date:** 10/14/13

**Field Supervisor Initials:**  
**Date:** 10/20/13

Sample ID Format:

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

---

**Note:** Sample ID Format:  
**SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)  
**SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)  
**PW-1-B2:** Pore Water at Station 1-B2

---

**URS**
Project Number: 36310189
Station Identifier: 2-C1

Sample Location:
EASTING: Y35511.96
NORTHING: S4138844.00

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?
   - Yes
   - No

2. Overlying water present?
   - Yes
   - No

3. Overlying water excessively turbid?
   - Yes
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?
   - Yes
   - No

5. Desired penetration depth (4 to 6 inches) achieved?
   - Yes
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?
   - Yes
   - No

7. Sample is:
   - Accepted
   - Rejected

Porewater
Cumulative Percent of Porewater Syringe filled:
- Accepted
- Rejected

pH of Sediment in Sampler:
- Accepted
- Rejected

Sediment Characteristics
Type:
- % Silt
- % Sand
- % Gravel
- % Cobbles
- % Silica Glass

Color:
Munsell Color Chart #: [ ]
Description:

Redox Boundary:
Present?: Yes
If present -- Depth Below Sediment Surface (inches):

Odor:
- None
- Hydrogen sulfide
- Other:

Amphipods:
- Tubules:
- Other:

Debris (twigs/leaves):
- Stratified sediment: Yes
- Sheen Present: Yes

Sample Collected Using
- Van Veen
- Eckman
- Ponar
- Shovel
- Other:

Photo Numbers:
- Sediment in Grab:
- Homogenized Sample:

Sediment (SE) Sample ID:
- Time:
- # Containers:
- Volume:

Duplicate SE Sample ID:
- Time:
- # Containers:
- Volume:

Split SE Samples (EPA/NPS/CCT):
- Time:
- # Containers:
- Volume:

Pore Water (PW) Sample ID:
- Time:
- # Containers:
- Volume:

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Project Number: 36310189
Station Identifier: 2-C1

Anchor Point (max 3)
1 2 3

Drop # 1 2 3 Cast Time 09:17
Sampler Penetration (inches): 1

Angle (< 5° max) Yes No

Cultural Resources Observed? No Yes

Sample Location: 48981.00 (NAD_83_UTM_Zone_11_North)
EASTING: 5415843.30
NORTHING: 

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is:
   Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___ % Accepted Rejected
pH of Sediment in Sampler: ______ su Description:

Sediment Characteristics

Type: % Silt (1<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobble
% Silica Glass:

Color: Munsell Color Chart #:
Description:

Odor: None Hydrogen sulfide
Other:

Amphipods: Debris/twigs/leaves: Other:

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Other:

Photo Numbers’
(see Photo Log for descriptions)

Sediment in Grab: 119-0570
Time: 09:18
Homogenized Sample: Time:

Sediment (SE) Sample ID: Time: # Containers: Volume:

Duplicate SE Sample ID: Time: # Containers: Volume:

Split SE Samples (EPA/NPS/CCT): # Containers: Volume:

Pore Water (PW) Sample ID: Time: # Containers: Volume:

Sample Lead Initials: Date: 7/15/13
Field Supervisor Initials: Date: 10/60/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
*Upper Columbia River RI/FS*  
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2-C1</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>13.2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>09:20</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Angle (&lt; 5'max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

**Sample Location:**  
EASTING: 133824.11  
NORTHING: 541558.2058  
(NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No  

2. Overlying water present?  
   - Yes  
   - No  

3. Overlying water excessively turbid?  
   - Yes  
   - No  

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No  

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No  

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No  

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th></th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
<td></td>
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</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass:</th>
</tr>
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| Color | Munsell Color Chart #: 
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Description:</td>
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<table>
<thead>
<tr>
<th>Redox Boundary: Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
<td></td>
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</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Other:</th>
</tr>
</thead>
</table>

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers' (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** 22  
**Date:** 6/15/13  
**Field Supervisor Initials:** 24  
**Date:** 9/30/13

**URS**

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-C1
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time: 01:28
Angle (< 5°max) Yes No
Sample Location: (NAD_83_UTM_Zone_11_North)
EASTING: 13795.50 NORTHING: 541582.64
Water Depth (feet): 13.9
Sampler Penetration (inches): 1

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: su Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm)
% Gravel % Cobbles % Silica Glass:

Color: Munsell Color Chart #:
Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods: Debris(twig/leaves):
Tubes: Other:
Macrophytes:

Sample Collected Using:
Van Veen Eckman
Ponar Shovel

Photo Numbers’s (see Photo Log for descriptions)
Sediment in Grab: 11-05-12 Time: 09:26
Homogenized Sample: Time: Other:

Sediment (SE) Sample ID: Time:
# Containers: Volume: %
Duplicate SE Sample ID:
# Containers: Volume: %
Split SE Samples (EPA/NPS/CCT):
# Containers: Volume: %
Pore Water (PW) Sample ID:
# Containers: Volume: %

Sample Lead Initials: Date: 01/11/13
Field Supervisor Initials: Date: 09/01/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189

**Station Identifier:** _2-c1_

**Anchor Point (max 3):** 1 2 3

**Water Depth (feet):** 13.2

**Drop # 1 2 3 Cast Time:** 0931

**Sampler Penetration (inches):** 7

**EASTING:** 43980.31

**NORTHING:** 541582.27

**Sample Location:** NAD_83_UTM_Zone_11_North

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? _YES_ 

2. Overlying water present? _YES_ 

3. Overlying water excessively turbid? _YES_ 

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? _YES_ 

5. Desired penetration depth (4 to 6 inches) achieved? _YES_ 

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? _YES_ 

7. Sample is: _Accepted_ 

---

**Porewater**

Cumulative Percent of Porewater Syringe filled: 100%

**pH of Sediment in Sampler:** 7.85

**Description:** _unstated_ 

---

**Porewater Characteristics**

- **Color:** Munsell Color Chart #: 5Y 6/1
  - Description: Very dark gray fine sand
- **Redox Boundary:** Present? _Yes_ 
  - If present -- Depth Below Sediment Surface (inches):

---

**Amphipods:** _Yes_ 

**Tubes:** _Yes_ 

**Macrophytes:** _Yes_ 

---

**Sample Collected Using**

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

**Sediment in Grab:** _19-0573_

**Homogenized Sample:** _19-0617_

---

**Sediment (SE) Sample ID:** _SE-2-c1_

**Time:** 10:40

**# Containers:** 5

**Volume:** 10.0%

---

**Duplicate SE Sample ID:** _m2c1.13_

**Time:** 10:40

**# Containers:** 1

**Volume:** 100%

---

**Split SE Samples (EPA/NPS/CCT):** _5-

**Time:** 10:40

**# Containers:** 3

---

**Pore Water (PW) Sample ID:** _2-c1_

**Time:** 10:40

**# Containers:** 3

**Volume:** 100%

---

Sample Lead Initials: _G_

Date: _10/19/13_

Field Supervisor Initials: _DA_

Date: _10/20/13_

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>119-0553</td>
<td>0843</td>
<td>Sebring</td>
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<td>Stolen ID</td>
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<tr>
<td>119-0583</td>
<td>0903</td>
<td>Collins</td>
<td>Upstream</td>
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<td>119-0584</td>
<td>0903</td>
<td>Collins</td>
<td>Left bank</td>
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<td>119-0585</td>
<td>0903</td>
<td>Collins</td>
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<td>119-0586</td>
<td>0909</td>
<td>Collins</td>
<td>Right bank</td>
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<td>119-0587</td>
<td>0909</td>
<td>Collins</td>
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<td>Sediment in 1st grab</td>
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<td>119-0588</td>
<td>0915</td>
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<td>119-0589</td>
<td>0915</td>
<td>Collins</td>
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<td>Rock in 3rd grab</td>
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Field Supervisor Initials:  
Sample Lead Initials:  
Date: 10/19/13
## Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project:</th>
<th>36310189</th>
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<tbody>
<tr>
<td>Date:</td>
<td>10/18/13</td>
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<tr>
<td>Camera Serial #:</td>
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<td>Photographer:</td>
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<td>Description:</td>
<td>Sediment in 4th grab</td>
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<td>Description:</td>
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<td>Photo Orientation:</td>
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<td>Description:</td>
<td>Sediment in 6th grab</td>
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<td>Photo Orientation:</td>
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<td>Description:</td>
<td>Sediment from 7th grab</td>
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<td>Description:</td>
<td>Homogenized Scrape</td>
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<tr>
<td>Description:</td>
<td>Homogenized Scrape</td>
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**Field Supervisor Initials:**  
Date: 10/20/13

**Sample Lead Initials:**  
Date: 10/19/13

[URS logo]
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189

Date: 10/18/13

Staging Crew: TL/AM/JSN

EPA Observer: ML/FACO

Arrival Time: 143.745

River Stage: N/A

Station Identifier: 2-C2

Vessel: TACAMA

Vessel Crew: RT/NC/CP

C.R. Observer: D. Scurtinkin

Departure Time: 155.2

Weather Conditions Upon Arrival:

Temp (°F): 60°

Wind (mph): Calm

Clouds/Previtation: Sunny

Sample Information:

Boat Position: (Powered) (Anchored)

River Mile: 

Water Surface: (Calm) (Small Waves) (Choppy)

Surface Vegetation Present: Yes

Was Vegetation Removed: Yes

Notable shore surface features:

(sample outline, streams, wetlands, willows, outfalls, roads, billboards, cemeteries, construction, etc.)

Sample Location Photo IDs:

(see Photo Log for descriptions)

Photo ID: 118-0569
Time: 1435

Photo ID: 118-0569
Time: 1435

Photo ID: 118-0571
Time: 1436

Photo ID: 118-0571
Time: 1436

General Notes:

(complete (9) grabs, All unsuccessful)

C.R. - cultural resources

Field Supervisor Initials: 04
Date: 10/18/13

Sample Lead Initials: J
Date: 10/18/13

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-c2

Anchor Point (max 3) 0 2 3
Drop # 1 2 3 Cast Time 1440
Angle (< 5°max) Yes No

Sample Location:
EASTING: 439,350.15 NORTING: 5476.30.64

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? * YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: Accepted Rejected
pH of Sediment in Sampler: Description:

Sediment Characteristics
Type: Munsell Color Chart #:
% Silt (%<1/16 mm) Description:
% Sand (%1/16 - 2 mm) Redox Boundary:
% Gravel
% Cobble
% Silica Glass

Odor: None Hydrogen sulfide
Other:

Amphipods: Debris(twigs/leaves):
Tubes: Other:
Macrophytes:

Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers 's
(see Photo Log for descriptions)

Sediment in Grab:
Homogenized Sample:
Other:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 1/4/13 Field Supervisor Initials: Date: 1/4/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Sample Acceptance Criteria</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment Characteristics

- **Type:**
  - % Silt
  - % Sand
  - % Gravel
  - % Cobbles
  - % Silica Glass

- **Color:**
  - Munsell Color Chart #
  - Description:

- **Redox Boundary:**
  - Present?
  - Yes
  - No

- **Odor:**
  - None
  - Hydrogen sulfide

- **Other:**

### Amphipods:

- **Tubes:**

- **Macrophytes:**

### Stratified sediment:

- Yes
- No

### Sheen Present:

- Yes
- No

### Sediment in Grab:

- Van Veen
- Eckman
- Ponar
- Shovel

### Homogenized Sample:

### Other:

### Sediment (SE) Sample ID:

- Time:
- # Containers:
- Volume:
- %

### Duplicate SE Sample ID:

- Time:
- # Containers:
- Volume:
- %

### Split SE Samples (EPA/NPS/CCT):

- Time:
- # Containers:
- Volume:
- %

### Pore Water (PW) Sample ID:

- Time:
- # Containers:
- Volume:
- %
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>2-C2</td>
<td>1 2 3</td>
<td>2.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1448</td>
<td>cobble</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>Sample Acceptance Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING</td>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
</tr>
<tr>
<td></td>
<td>2. Overlying water present? YES NO</td>
</tr>
<tr>
<td></td>
<td>3. Overlying water excessively turbid? YES NO</td>
</tr>
<tr>
<td></td>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO</td>
</tr>
<tr>
<td></td>
<td>5. Desired penetration depth (4 to 6 inches) achieved? YES NO</td>
</tr>
<tr>
<td></td>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO</td>
</tr>
<tr>
<td></td>
<td>7. Sample is: Accepted Rejected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Porewater</th>
<th>Cumulative Percent of Porewater Syringe filled: %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler: su</th>
<th>Description:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: % Silt (&lt;1/16 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary: Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris(twigs/leaves):</td>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Stratified sediment: Yes No</td>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Ponar</td>
<td>Time: 1448</td>
</tr>
<tr>
<td>Other:</td>
<td>Shovel</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: AR  
Date: 10/18/13  
Field Supervisor Initials: DH  
Date: 11/19/13  

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 2-C2

- **Anchor Point (max 3):** 1 2 3  
- **Drop # 1 2 3:**  
- **Cast Time:** 1450  
- **Sampler Penetration (inches):** [open w/ cobble]

**Angle (< 5° max):** Yes  
**No**

**Sample Location:** 43933.270 (NAD_83_UTM_Zone_11_North)  
**EASTING:**  
**NORTHING:** 5416037.70

**Sample Location:**

<table>
<thead>
<tr>
<th>Sample Acceptance Criteria</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

**Sample is:**

- Accepted
- Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**
- **Accepted**
- **Rejected**

**pH of Sediment in Sampler:**

- **Description:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Redox Boundary:**

- **Present?** Yes  
- **No**

**Odor:**

- None
- Hydrogen sulfide

**Amphipods:**

- Debris (twigs/leaves):
  - Other:

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Homogenized Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Photo Numbers:**

- 118-0575

**Sample Lead lnitials:** [Signature]

**Date:** 10/18/13

**Field Supervisor Initials:** [Signature]

**Date:** 01/19/14

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 2-c2

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>3.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1452</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt;5° max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Sample Location:** E439340.66, N541456.23

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? **YES** | **NO**
2. Overlying water present? **YES** | **NO**
3. Overlying water excessively turbid? **YES** | **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** | **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** | **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** | **NO**
7. Sample is: **Accepted** | **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled: ___%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:** NR

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Redox Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td>Munsell Color Chart #:</td>
<td>Present?</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
<td>Yes</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td>118-0570</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td>Time: 1453</td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Macrophytes:**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

**Sample ID Format:**
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: *R*  
Date: 10/18/13  
Field Supervisor Initials: *O*  
Date: 9/19/13
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

**Station Identifier:** 2-C2

**Anchor Point (max 3):** 1 2 3

**Drop #:** 1 2 3

**Cast Time:** 1456

**Water Depth (feet):** 3.6

**Sample Penetration (inches):** "open w/cobble"

**Cultural Resources Observed?** No Yes

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? - YES NO
2. Overlying water present? - YES NO
3. Overlying water excessively turbid? - YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? - YES NO
5. Desired penetration depth (4 to 6 inches) achieved? - YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? - YES NO
7. Sample is: Accepted Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
- pH of Sediment in Sampler: su
- Description:

### Sediment Characteristics

**Type:**
- % Silt: ___ (<1/16 mm)
- % Sand: ___ (1/16 - 2 mm)
- % Gravel: ___
- % Cobbles: ___
- % Silica Glass: ___

**Color:** Munsell Color Chart #:
- Description:

**Redox Boundary:**
- Present? Yes No
- If present - Depth Below Sediment Surface (inches):

**Odor:**
- None
- Hydrogen sulfide
- Other:

### Amphipods:

- Tube:
- Other:
- Macrophytes:

### Debris (twigs/leaves):

- Stratified sediment: Yes No
- Sheen Present: Yes No

### Sample Collected Using

- Van Veen
- Eckman
- Ponar
- Shovel

### Sediment (SE) Sample ID:

- Time: __________
- # Containers: _______
- Volume: ______ %

### Duplicate SE Sample ID:

- Time: __________
- # Containers: _______
- Volume: ______ %

### Split SE Samples (EPA/NPS/CCT):

- Time: __________
- # Containers: _______
- Volume: ______ %

### Pore Water (PW) Sample ID:

- Time: __________
- # Containers: _______
- Volume: ______ %

### Sample Lead Initials: ________________ Date: 10/18/13

### Field Supervisor Initials: ________________ Date: 10/19/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-C2
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1458
Angle (< 5°max) Yes No
Water Depth (feet): 42
Sampler Penetration (inches): < 3
Cultural Resources Observed? No Yes
Sample Location: (NAD_83_UTM_Zone_11_North)
EASTING: 439358.13
NORTHING: 5916049.37

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?
   YES NO
2. Overlying water present?
   YES NO
3. Overlying water excessively turbid?
   YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of
   channeling or sample washout?
   YES NO
5. Desired penetration depth (4 to 6 inches) achieved?
   YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle,
   tilting upon retrieval)?
   YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __________
ph of Sediment in Sampler: __________

Sediment Characteristics
Type:
% Silt 1/16 mm
% Sand 1/16 - 2 mm
% Gravel
% Cobble
% Silica Glass

Color: Munsell Color Chart #:
Description:
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris(twigs/leaves):
Sample Collected Using
Stratified sediment: Yes No
Sheen Present: Yes No
Van Veen
Eckman
Ponar
Shovel

Sample Lead lnitials/ Date: / Field Supervisor Initials/ Date:

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
## Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

### Project Number: 36310189

**Station Identifier:** 2-CD

**Anchor Point (max 3)** | **Drop #** | **Cast Time** | **Water Depth (feet):** 4.3' | **Sampler Penetration (inches):** gravel/cobble
---|---|---|---|---
1 | 2 | | | 
2 | | | | 
3 | | | | 

**Sample Location:** 439354.84, 84754605.349 (NAD_83_UTM_Zone_11_North)

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No  

2. Overlying water present?  
   - Yes  
   - No  

3. Overlying water excessively turbid?  
   - Yes  
   - No  

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No  

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No  

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No  

7. Sample is:  
   - Accepted  
   - Rejected  

### Porewater

- **Cumulative Percent of Porewater Syringe filled:**  
- **pH of Sediment in Sampler:**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silt</td>
<td>Munsell Color Chart #</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

- **Debris (twigs/leaves):**
- **Tubes:**
- **Other:**

### Macrophytes:

- **Stratified sediment:** Yes  
  - No
- **Sheen Present:** Yes  
  - No

### Sample Collected Using

- **Van Veen:**
- **Eckman:**
- **Ponar:**
- **Shovel:**

### Sediment in Grab:

#### Homogenized Sample:

#### Other:

### Photo Numbers:

- **(see Photo Log for descriptions)**
  - Time: 1501

### Sediment (SE) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Duplicate SE Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Split SE Samples (EPA/NPS/CCT):

- **Time:**
- **# Containers:**
- **Volume:**

### Pore Water (PW) Sample ID:

- **Time:**
- **# Containers:**
- **Volume:**

### Sample Lead Initials:

- **Date: 10/12/13**

### Field Supervisor Initials:

- **Date: 10/19/13**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-CQ
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1503
Angle (< 5° max) Yes No
Water Depth (feet): 4.3
Sampler Penetration (inches): < 2
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 439356.07
NORTHING: 5416050.39

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected
pH of Sediment in Sampler: N R su Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
If present – Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods:
Debris (twigs/leaves):
Sample Collected Using:
Van Veen
Eckman
Ponar
Shovel
Photo Numbers 's
(see Photo Log for descriptions)

Stratified sediment: Yes No
Sheen Present: Yes No
Sediment in Grab: 118-0580
Homogenized Sample:
Other:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT):
# Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials 12 Date: 10/18/13
Field Supervisor Initials 04 Date: 10/19/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0567</td>
<td>14:25</td>
<td>MC</td>
<td>Site TD</td>
<td>2-C2</td>
</tr>
<tr>
<td>118-0568</td>
<td>14:35</td>
<td>MC</td>
<td>North</td>
<td>Upstream of Site</td>
</tr>
<tr>
<td>118-0569</td>
<td>14:35</td>
<td>MC</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>118-0570</td>
<td>14:35</td>
<td>MC</td>
<td>South</td>
<td>Downstream of Site</td>
</tr>
<tr>
<td>118-0571</td>
<td>14:36</td>
<td>MC</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>118-0572</td>
<td>14:41</td>
<td>MC</td>
<td></td>
<td>Rejected grad #1</td>
</tr>
<tr>
<td>118-0573</td>
<td>14:47</td>
<td>MC</td>
<td></td>
<td>Rejected grad #2</td>
</tr>
<tr>
<td>118-0574</td>
<td>14:48</td>
<td>MC</td>
<td></td>
<td>Rejected grad #3</td>
</tr>
</tbody>
</table>
## Photo Log
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0575</td>
<td>14:51</td>
<td>MC</td>
<td></td>
<td>Rejected grab #1 cobble</td>
</tr>
<tr>
<td>118-0576</td>
<td>14:53</td>
<td>MC</td>
<td></td>
<td>Rejected grab #5 cobble/gravel</td>
</tr>
<tr>
<td>118-0577</td>
<td>14:55</td>
<td>MC</td>
<td></td>
<td>Rejected grab #6</td>
</tr>
<tr>
<td>118-0578</td>
<td>14:58</td>
<td>MC</td>
<td></td>
<td>Rejected grab #7 gravel/cobble</td>
</tr>
<tr>
<td>118-0579</td>
<td>15:01</td>
<td>MC</td>
<td></td>
<td>Rejected grab #8</td>
</tr>
<tr>
<td>118-0580</td>
<td>15:02</td>
<td>MC</td>
<td></td>
<td>Rejected grab #9 gravel/cobble</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature]
Date: 10/19/13

Sample Lead Initials: [Signature]
Date: 10/18/13
# Sample Location Form

**Upper Columbia River RIFB**  
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10/18/13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>JE/BN/SN</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>ML/ENDO</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>13:20</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td>N/A</td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td></td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Boat Position:</td>
<td>(Powered)</td>
</tr>
<tr>
<td>River Mile:</td>
<td></td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>N/A</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>(High outcrops, streams, wetlands, cibows, outfalls, roads, houses, campsites, construction, etc.)</td>
</tr>
<tr>
<td>Station Identifier:</td>
<td>2-C3</td>
</tr>
<tr>
<td>Vessel:</td>
<td>Nanuma</td>
</tr>
<tr>
<td>Vessel Crew:</td>
<td>RT/NC/GP</td>
</tr>
<tr>
<td>C.R. Observer:</td>
<td>Di. Streit/kin</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>14:28</td>
</tr>
<tr>
<td>Weather Conditions Upon Arrival:</td>
<td></td>
</tr>
<tr>
<td>Temp (°F):</td>
<td>58</td>
</tr>
<tr>
<td>Wind (mph):</td>
<td>Calm</td>
</tr>
<tr>
<td>Cloud Cover/Visibility:</td>
<td>Clear</td>
</tr>
<tr>
<td>River Current:</td>
<td>(Swift)</td>
</tr>
<tr>
<td>Boat Traffic:</td>
<td>Support</td>
</tr>
<tr>
<td>Date:</td>
<td>10/18/13</td>
</tr>
<tr>
<td>Time:</td>
<td>13:21</td>
</tr>
</tbody>
</table>

### General Notes:

*complete (4) unsuccessful grabs. cobbled or open grab.*

---

**C.R. - cultural resources**

Field Supervisor Initials: [Signature]  
Date: 10/19/13

Sample Lead Initials: [Signature]  
Date: 10/18/13

[URS Logo]
**Project Number:** 36310189  
**Station Identifier:** 2-C3

**Sample Location:**
- **EASTING:** 438038.41
- **NORTHING:** 5414106.99

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler?  
   - Accepted  
   - Rejected
2. Overlying water present?  
   - Accepted  
   - Rejected
3. Overlying water excessively turbid?  
   - Accepted  
   - Rejected
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Accepted  
   - Rejected
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Accepted  
   - Rejected
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Accepted  
   - Rejected
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**
- Cumulative Percent of Porewater Syringe filled:  
  - Accepted  
  - Rejected
- pH of Sediment in Sampler:  
  - Accepted  
  - Rejected

**Sediment Characteristics**
- **Type:**  
  - % Silt  
  - % Sand  
  - % Gravel  
  - % Cobbles  
  - % Silica Glass:
- **Color:** Munsell Color Chart #:
- **Redox Boundary:**  
  - Present?  
  - No
- **Odor:**  
  - None  
  - Hydrogen sulfide

**Amphipods:**
- **Debris (twigs/leaves):**  
- **Tubes:**
- **Other:**

**Macrophytes:**
- Stratified sediment:  
  - Yes  
  - No
- Sheen Present:  
  - Yes  
  - No

**Sample Collected Using**
- Van Veen  
- Eckman  
- Ponor  
- Shovel

**Photo Numbers**
- Sediment in Grab: 118-0558
- Homogenized Sample:
- Other:

**Sediment (SE) Sample ID:**  
- Time:  
- # Containers:  
- Volume:  
- %

**Duplicate SE Sample ID:**  
- Time:  
- # Containers:  
- Volume:  
- %

**Split SE Samples (EPA/NPS/CCT):**  
- # Containers:  
- Volume:  
- %

**Pore Water (PW) Sample ID:**  
- Time:  
- # Containers:  
- Volume:  
- %

**Sample Lead Initials:** JF  
**Date:** 10/18/13  
**Field Supervisor Initials:** SM  
**Date:** 01/17/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

**Station Identifier:** 2-C3

**Anchor Point (max 3):** 0 2 3

**Water Depth (feet):** 43.4

**Drop #:** 1 2 3 **Cast Time:** 13:24

**Sampler Penetration (inches):** Empty

**Angle (< 5° max):** Yes No

**Cultural Resources Observed?** No Yes

**Sample Location:** (NAD_83_UTM_Zone_11_North)

**EASTING:** 438617.84 **NORTHING:** 5419086.17

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>su</th>
</tr>
</thead>
</table>

**Description:**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (less than 1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Redox Boundary:**

<table>
<thead>
<tr>
<th>Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
</table>

**Sediment in Grab:** 118 - r559
**Homogenized Sample:**

<table>
<thead>
<tr>
<th>Time:</th>
<th></th>
</tr>
</thead>
</table>

**Photo Numbers 's**

### Sediment (SE) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Sample Lead Initials:** JR

**Date:** 10/18/15

**Field Supervisor Initials:** ON

**Date:** 10/19/15

---

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2

---

**URS**
### Sediment/Porewater Sampling Form
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189

**Sample Location:** NAD_83_UTM_Zone_11_North

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>Color:</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td>Munsell Color Chart #:</td>
<td>Present?</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
<td>Yes</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Amphipods:

- Debris (twigs/leaves):
- Other:

#### Macrophytes:

- Stratified sediment: Yes
- Sheen Present: Yes

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
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<td></td>
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<tr>
<td>Ponar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

#### Photo Numbers: (see Photo Log for descriptions)

- Sediment in Grab: 118-0560
- Time: 1330
- Homogenized Sample: Time: Time:

#### Sediment (SE) Sample ID:

- Time: 
- # Containers: 
- Volume: %

#### Duplicate SE Sample ID:

- Time: 
- # Containers: 
- Volume: %

#### Split SE Samples (EPA/NPS/CCT):

- Time: 
- # Containers: 
- Volume: %

#### Pore Water (PW) Sample ID:

- Time: 
- # Containers: 
- Volume: %

**Sample Lead Initials:** JMK  
**Date:** 10/18/13  
**Field Supervisor Initials:**  
**Date:** 10/19/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
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<tbody>
<tr>
<td>36310189</td>
<td>2-3</td>
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<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.2</td>
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</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>empty</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 438060.78</td>
</tr>
<tr>
<td>NORTING: 5414095.62</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted Rejected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted Rejected</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>118-0561</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time: 1333</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume: %</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample ID Format:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
</tr>
<tr>
<td>SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)</td>
</tr>
<tr>
<td>PW-1-B2: Pore Water at Station 1-B2</td>
</tr>
</tbody>
</table>

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

---

<table>
<thead>
<tr>
<th>Station Identifier: 2-e3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EASTING:</strong> 438041.21</td>
</tr>
<tr>
<td><strong>NORTHING:</strong> 1139.28</td>
</tr>
</tbody>
</table>

---

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? 
   - **YES**
   - **NO**

2. Overlying water present? 
   - **YES**
   - **NO**

3. Overlying water excessively turbid? 
   - **YES**
   - **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? 
   - **YES**
   - **NO**

5. Desired penetration depth (4 to 6 inches) achieved? 
   - **YES**
   - **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? 
   - **YES**
   - **NO**

7. Sample is: 
   - Accepted
   - Rejected

---

### Porewater

- Cumulative Percent of Porewater Syringe filled: 
  - Accepted
  - Rejected

- **pH of Sediment in Sampler:** su
  - Description:

---

### Sediment Characteristics

- **Type:** 
  - % Silt 
  - (1/16 mm)
  - % Sand 
  - (1/16 - 2 mm)
  - % Gravel
  - % Cobble

- **Color:** Munsell Color Chart
  - Description:

- **Redox Boundary:** 
  - Present? 
  - Yes
  - No

- **Odor:** 
  - None
  - Hydrogen sulfide
  - Other:

---

### Amphipods:

- Debris (twigs/leaves):

### Tubes:

- Other:

### Macrophytes:

- Stratified sediment: Yes
  - No

---

### Sample Collected Using

- Van Veen
- Eckman
- Ponor
- Shovel

### Sediment Collected

- Sediment in Grab
- Homogenized Sample

### Photo Numbers

- Sediment in Grab: 118-C567
  - Time: 1336

### Sample Lead Initials:

- **Date:** 10/18/13

---

### Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

### URS
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 4-2-C3

**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):** 41.4

**Drop #:** 1 2 3  
**Cast Time:** 1338

**Angle (<5° max):** Yes  
**Sampler Penetration (inches):** cobble open  
**Cultural Resources Observed?** No

**Sample Location:** 4380.84, 136 (NAD_83_UTM_Zone_11_North)  
**NORTHING:** 5414133.25

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**

2. Overlying water present?  
   - **YES**  
   - **NO**

3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**  
   - **NO**

5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**

7. Sample is:  
   - Accepted  
   - Rejected

#### Porewater

- **Cumulative Percent of Porewater Syringe filled:** 
  - Accepted
  - Rejected

- **pH of Sediment in Sampler:**
  - Su
  - Description:

#### Sediment Characteristics

- **Type:**
  - % Silt
  - % Sand
  - % Gravel
  - % Cobbles
  - % Silica Glass

- **Color:**
  - Munsell Color Chart #:
  - Description:

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

#### Amphipods:

- Debris (twigs/leaves):
- Tubes:
- Macrophytes:

#### Sample Collected Using

- Stratified sediment: Yes No
- Sheen Present: Yes No

#### Photo Numbers:

- Sediment in Grab: 118-0563  
- Time: 1339

#### Sediment (SE) Sample ID:

- Time:
- # Containers:
- Volume:
- %

#### Duplicate SE Sample ID:

- Time:
- # Containers:
- Volume:
- %

#### Split SE Samples (EPA/NPS/CCT):

- Time:
- # Containers:
- Volume:
- %

#### Pore Water (PW) Sample ID:

- Time:
- # Containers:
- Volume:
- %

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: [Redacted]  
Date: 10/18/13  
Field Supervisor Initials: [Redacted]  
Date: 10/18/13

---

**URS**
### Sediment/Porewater Sampling Form

#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 2 - C3

- **Anchor Point (max 3):** 1, 2, 3  
- **Water Depth (feet):** 44.8

- **Drop #:** 1, 2, 3  
- **Cast Time:** 13:41

- **Sample Penetration (inches):** ✗
- **Cultural Resources Observed?** No

**Sample Location:**
- **EASTING:** 438103.61  
- **NORTHING:** 5414108.68

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater**
- **Cumulative Percent of Porewater Syringe filled:** _%  
- **pH of Sediment in Sampler:** _

**Sediment Characteristics**

- **Type:** % Silt: _ (<1/16 mm)  
- **Color:** Munsell Color Chart #: _  
- **Redox Boundary:** Present? Yes  
- **Odor:** None

**Amphipods:**

**Debris (twigs/leaves):**

- **Stratified sediment:** Yes  
- **Sheen Present:** Yes

**Sample Collected Using:**

- Van Veen  
- Eckman  
- Ponar  
- Shovel  
- Homogenized Sample  
- Sediment in Grab  

**Photo Numbers:**

- Sediment in Grab: U8-C564  
- Homogenized Sample: Time: 13:42

**Split SE Samples (EPA/NPS/CCT):**

- **# Containers:**  
- **Volume:** _%  

**Pore Water (PW) Sample ID:**

- **# Containers:**  
- **Volume:** _%  

**Sample Lead Initials:**  
**Date:** 10/4/13

**Field Supervisor Initials:**  
**Date:** 10/19/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Station Identifier</th>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Cast Time</th>
<th>Water Depth (feet)</th>
<th>Sampler Penetration (inches)</th>
<th>Cultural Resources Observed</th>
<th>Sample Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>2-C3</td>
<td>1 2 3</td>
<td>1 2 3</td>
<td>1344</td>
<td>47.4</td>
<td>Empty</td>
<td>No</td>
<td>EASTING: 438695.66</td>
</tr>
</tbody>
</table>

Sample Location: \( \text{NAD}_83_{\text{UTM_Zone_11_North}} \)
NORTHING: 5414679.93

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Accepted  
   - Rejected

2. Overlying water present?  
   - Accepted  
   - Rejected

3. Overlying water excessively turbid?  
   - Accepted  
   - Rejected

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Accepted  
   - Rejected

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Accepted  
   - Rejected

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Accepted  
   - Rejected

7. Sample is:  
   - Accepted  
   - Rejected

Porewater  
Cumulative Percent of Porewater Syringe filled:  

pH of Sediment in Sampler:  

Sediment Characteristics  
Type:  
- % Silt  
- % Sand  
- % Gravel  
- % Cobbles  
- % Silica Glass:

Color:  
Munsell Color Chart #:  
Description:

Redox Boundary:  
- Present? Yes  
- If present - Depth Below Sediment Surface (inches):

Odor:  
- None  
- Hydrogen sulfide

Amphipods:  
- Debris (twigs/leaves):
- Other:

Tubes:  
- Other:

Macrophytes:  
- Other:

Sample Collected Using  
- Van Veen  
- Eckman  
- Ponor  
- Shovel

Photo Numbers’ s:  
Sediment in Grab:  
Homogenized Sample:  
Other:

Sediment (SE) Sample ID:  
Time:  
# Containers:  
Volume:  

Duplicate SE Sample ID:  
Time:  
# Containers:  
Volume:  

Split SE Samples (EPA/NPS/CCT):  
Time:  
# Containers:  
Volume:  

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume:  

Sample Lead Initials:  
Date: 10/18/13

Field Supervisor Initials:  
Date: 10/19/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-3

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1347
Angle (< 5° max) Yes No
Water Depth (feet): 48.4
Sampler Penetration (inches): Cobble
Cultural Resources Observed? No Yes

Sample Location: 438033.50 (NAD_83_UTM_Zone_11_North)
EASTING: 5414061.91 NORTHING: 

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: __ su Description: __

Sediment Characteristics
Type: % Silt (1/16 mm) Color: Munsell Color Chart #: Description: ___
% Sand (1/16 - 2 mm) Redox Boundary: Present? Yes No
% Gravel If present -- Depth Below Sediment Surface (inches): ___
% Cobbles ___
% Silica Glass: ___ Odor: None Hydrogen sulfide

Amphipods: Tubes: Macrophytes:
Debris(twigs/leaves): Other: __

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Ponar</td>
<td>Sediment in Grab: 118-6566</td>
</tr>
<tr>
<td>Shovel</td>
<td>Homogenized Sample:</td>
<td>Time: 1349</td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: __ Time: __ # Containers: __ Volume: __ %
Duplicate SE Sample ID: __ Time: __ # Containers: __ Volume: __ %
Split SE Samples (EPA/NPS/CCT): __ Time: __ # Containers: __ Volume: __ %
Pore Water (PW) Sample ID: __ Time: __ # Containers: __ Volume: __ %

Sample Lead Initials: __ Date: 10/18/13 Field Supervisor Initials: __ Date: 1/17/15

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0553</td>
<td>13:14</td>
<td>MC</td>
<td>Site ID</td>
<td>2-C3</td>
</tr>
<tr>
<td>118-0554</td>
<td>13:21</td>
<td>MC</td>
<td>North</td>
<td>Upstream of site</td>
</tr>
<tr>
<td>118-0555</td>
<td>13:21</td>
<td>MC</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>118-0556</td>
<td>13:01</td>
<td>MC</td>
<td>South</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>118-0557</td>
<td>13:21</td>
<td>MC</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>118-0558</td>
<td>13:23</td>
<td>MC</td>
<td></td>
<td>Rejected grab #1</td>
</tr>
<tr>
<td>118-0559</td>
<td>13:26</td>
<td>MC</td>
<td></td>
<td>Rejected grab #2</td>
</tr>
<tr>
<td>118-0560</td>
<td>13:30</td>
<td>MC</td>
<td></td>
<td>Rejected grab #3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: JH  Date: 10/19/13
Sample Lead Initials: MA  Date: 10/19/13

URS
### Photo Log

Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0541</td>
<td>13:33</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #4</td>
</tr>
<tr>
<td>118-0562</td>
<td>13:36</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #5, cobble</td>
</tr>
<tr>
<td>118-0563</td>
<td>13:39</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #6, cobble, fines</td>
</tr>
<tr>
<td>118-0564</td>
<td>13:42</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #7</td>
</tr>
<tr>
<td>118-0565</td>
<td>13:46</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #8</td>
</tr>
<tr>
<td>118-0566</td>
<td>13:49</td>
<td>MC</td>
<td></td>
<td>Rejected, grab #9, cobble, coarse</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: **X**     Date: **10/18/13**

Sample Lead Initials: **L**     Date: **10/18/13**

---

Project: 36130189  
Station Identifier: 2-C3  
Vessel: Mazama
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2-024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/18/13</td>
<td>Vessel: nazama</td>
</tr>
<tr>
<td>Sampling Crew: TR/BM/SN</td>
<td>Vessel Crew: RT/NC/6P</td>
</tr>
<tr>
<td>EPA Observer: M. Endo</td>
<td>C.R. Observer: D.</td>
</tr>
<tr>
<td>Arrival Time: 11:13</td>
<td>Departure Time: 13:10</td>
</tr>
</tbody>
</table>

River Stage:
- Water Surface Elev. (ft): N/A
- Water Surface Elevation Source: ______________

Weather Conditions Upon Arrival
- Temp (°F): __________
- Wind (mph): __________
- Clouds/Precipitation: __________

Site Information:
- Boat Position: (Powered) (Anchored)
- River Mile: ______________
- Water Surface: (Calm) (Small Waves) (Choppy)
- Surface Vegetation Present: Yes (No)
- Was Vegetation Removed: Yes (No)
- River Current: (Swift) (Eddie) (Calm) (Ripple)
- Boat Traffic: support boats white and pumpkin dories.
- Notable shore surface features: railroad line east shore, Onion Creek/C. River confluence east shore

Sample Location Photo IDs:
- Photo ID: 118-0539, Time: 11:38
- Photo ID: 118-0540, Time: 11:38
- Photo ID: 118-0541, Time: 11:38
- Photo ID: 118-0542, Time: 11:38
- Photo ID: 118-0543, Time: 11:38

General Notes:
completed (9) grabs. All unsuccessful due to cobbles in grab teeth.

C.R. - cultural resources
Field Supervisor Initials ____________________________ Date: 10/18/13
Sample Lead Initials ____________________________ Date: 10/18/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189

**Station Identifier:** 2-C4

**Anchor Point (max 3):**
- 1
- 2
- 3

**Drop #:**
- 1
- 2
- 3

**Cast Time:** 11:40

**Water Depth (feet):** 48.4

**EASTING:** 437653.57  
**NORTHING:** 5419420.32

**Sample Location:**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES / NO
2. Overlying water present? YES / NO
3. Overlying water excessively turbid? YES / NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES / NO
5. Desired penetration depth (4 to 6 inches) achieved? YES / NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES / NO
7. Sample is: Accepted / Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: su</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Odor:** None / Hydrogen sulfide

**Amphipods:**
- None

**Tubes:**
- None

**Macrophytes:**
- None

**Debris (twigs/leaves):**
- None

**Sample Collected Using:**
- Van Veen
- Eckman
- Ponor
- Shovel
- Homogenized Sample
- Sediment in Grab

**Photo Numbers:**
- 116-05949

**Stratified sediment:**
- Yes / No

**Sheen Present:**
- Yes / No

**Sediment (SE) Sample ID:**
- Time:  
- # Containers:  
- Volume: %

**Duplicate SE Sample ID:**
- Time:  
- # Containers:  
- Volume: %

**Split SE Samples (EPA/NPS/CCT):**
- Time:  
- # Containers:  
- Volume: %

**Pore Water (PW) Sample ID:**
- Time:  
- # Containers:  
- Volume: %

**Sample Lead Initials:**
- Field Supervisor Initials

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Date:** 10/18/13  
**Field Supervisor Date:** 9/19/13

**URS**
**Sediment/Porewater Sampling Form**
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** 2-C4  
**EASTING:** 4376538.80  
**NORTHING:** 5414086.41

**Sample Location:** (NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: Accepted

---

**Porewater**

**Cumulative Percent of Porewater Syringe filled:** %

**pH of Sediment in Sampler:** su

---

**Sediment Characteristics**

**Type:** % Silt (%<1/16 mm)  
% Sand (%1/16 to 2 mm)  
% Gravel  
% Cobble  
% Silica Glass  

**Color:** Munsell Color Chart #:  
Description:

**Redox Boundary:** Present? **Yes**  
If present -- Depth Below Sediment Surface (inches):

**Odor:** None  
Hydrogen sulfide  
Other:

---

**Amphipods:**  
**Debris (twigs/leaves):**  
**Tubes:**  
**Macrophytes:**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Collected Using**

| Van Veen | Eckman | Ponar | Shovel |

**Sediment (SE) Sample ID:** Time:  
# Containers:  
Volume: %

**Duplicate SE Sample ID:** Time:  
# Containers:  
Volume: %

**Split SE Samples (EPA/NPS/CCT):** Time:  
# Containers:  
Volume: %

**Pore Water (PW) Sample ID:** Time:  
# Containers:  
Volume: %

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:**  
**Date:** 10/18/13  
**Field Supervisor Initials:**  
**Date:** 10/19/13

---

**URS**
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>UTM Zone 11 North</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES NO</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES NO</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES NO</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES NO</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES NO</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES NO</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted Rejected</td>
</tr>
</tbody>
</table>

### Porewater

| Cumulative Percent of Porewater Syringe filled: | ______% |
| pH of Sediment in Sampler: | ______ su |

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>Color:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td>Munsell Color Chart #:</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Yes No Van Veen</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes No Eckman</td>
</tr>
<tr>
<td>Other:</td>
<td>Ponar</td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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### Duplicate SE Sample ID:

<table>
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<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

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Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: [Initials]

Field Supervisor Initials: [Initials]

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>{NAD_83_UTM_Zone_11_North}</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES NO</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES NO</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES NO</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES NO</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES NO</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES NO</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted Rejected</td>
</tr>
</tbody>
</table>

Cumulative Percent of Porewater Syringe filled: ____% Accepted Rejected

pH of Sediment in Sampler: ___ su Description: ___

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>% Sand (1/16-2 mm)</td>
<td>Description: ___</td>
</tr>
<tr>
<td>Type:</td>
<td>% Gravel</td>
<td>Redox Boundary: Present? Yes No</td>
</tr>
<tr>
<td>Type:</td>
<td>% Cobble</td>
<td>If present - Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>Type:</td>
<td>% Silica Glass:</td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves): Tubes: Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers ^s (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
<td>118-4597 Time: 1154</td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td>Homogenized Sample:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: _____ Time: ___ # Containers: _____ Volume: ____%

Duplicate SE Sample ID: _____ Time: ___ # Containers: _____ Volume: ____%

Split SE Samples (EPA/NPS/CCT): _____ Time: ___ # Containers: _____ Volume: ____%

Pore Water (PW) Sample ID: _____ Time: ___ # Containers: _____ Volume: ____%

Sample Lead lnitials: ___ Date: 10/18/13 Field Supervisor Initials: ___ Date: 10/19/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**
*Upper Columbia River RI/FS*
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:  36310189</th>
<th>Station Identifier: 2-CY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 28.6</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1156</td>
<td>Sampler Penetration (inches): cobble open</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 437675.9 North NORTING: 541448.38</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>Project Number: 36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Depth (feet): 28.6</td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration (inches): cobble open</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed? No Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location: EASTING: 437675.9 North NORTING: 541448.38</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su Description:</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Munsell Color Chart #:</td>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary: Present? Yes No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macrophytes:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>Ponor</td>
</tr>
<tr>
<td>118-0598</td>
<td>Time: 1157</td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers:**

| Photo Numbers's (see Photo Log for descriptions) |
| URS-0598 |
| Time: 1157 |

**Sediment (SE) Sample ID:**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
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</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</thead>
</table>

**Sample Lead Initials:** 2K  Date: 10/18/13

**Field Supervisor Initials:** CH  Date: 10/19/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 2-C4

---

**Sample Location:**

**EASTING:** 437649.54  
**NORTHING:** 5414114.09  
**UTM Zone:** 11L  
**Datum:** North American 83

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   **Yes**  
   **No**

2. Overlying water present?  
   **Yes**  
   **No**

3. Overlying water excessively turbid?  
   **Yes**  
   **No**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   **Yes**  
   **No**

5. Desired penetration depth (4 to 6 inches) achieved?  
   **Yes**  
   **No**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   **Yes**  
   **No**

7. Sample is:  
   **Accepted**  
   **Rejected**

---

**Porewater**  
**Cumulative Percent of Porewater Syringe filled:**  
%  
**Description:**

**pH of Sediment in Sampler:**  
---  
**Accepted**  
**Rejected**

---

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt ((&lt;1/16) mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
<th>Redox Boundary</th>
<th>Odor</th>
<th>Depth Below Sediment Surface (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**  
**Debris (twigs/leaves):**

---

**Sample Collected Using**

- Van Veen
- Eckman
- Ponar
- Shovel

---

**Photo Numbers' (see Photo Log for descriptions)**

**Sediment in Grab:**  
**118-0849**  
**Time:** 1201

**Homogenized Sample:**

---

**Sediment (SE) Sample ID:**

---

**Duplicate SE Sample ID:**

---

**Split SE Samples (EPA/NPS/CCT):**

---

**Pore Water (PW) Sample ID:**

---

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:**

---

**Field Supervisor Initials:**

---

---

**URS**
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 2-4  
**Easting:** 3414  
**Nording:** 5414  
**Sample Location:** (NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No 
2. Overlying water present?  
   - Yes  
   - No 
3. Overlying water excessively turbid?  
   - Yes  
   - No 
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No 
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No 
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No 
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>su</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description:</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:** su

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
</table>

**Redox Boundary:**

- Present? Yes  
- No  
- If present - Depth Below Sediment Surface (inches):  
- Other: Hydrogen sulfide

**Odor:**  
- None  
- Other: Hydrogen sulfide

**Amphipods:**

- Debris (twigs/leaves):  
- Other:

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
<th>Sheen Present:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:** %

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:** %

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:** %

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:** %

**Sample Lead Initials:**  
**Date:** 10/8/13

**Field Supervisor Initials:**  
**Date:** 10/19/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2-C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>38.7</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time:</td>
<td>Sampler Penetration (inches):</td>
<td>cobble open</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>{NAD_83_UTM_Zone_11_North}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td>Rejected</td>
<td></td>
</tr>
</tbody>
</table>

#### Porewater

| Cumulative Percent of Porewater Syringe filled: | Accepted | Rejected |
| pH of Sediment in Sampler: | su | Description: |

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (1/16 mm)</th>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td>Redox Boundary:</td>
<td>Present?</td>
<td>Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present - Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor:</td>
<td>None</td>
<td>Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Amphipods:

- Debris (twigs/leaves):
- Tubes:
- Macrophytes:

- Stratified sediment: Yes No
- Sheen Present: Yes No

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Other:</td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment (SE) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

#### Duplicate SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

#### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

#### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: \textit{AR} Date: 09/18/13  
Field Supervisor Initials: \textit{A1} Date: 09/19/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>2-C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>41.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1208</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 437627.40</td>
<td>NORTHING: 5414117.43</td>
<td></td>
</tr>
</tbody>
</table>

Sample Location: 437627.40 (NAD_83_UTM_Zone_11_North)  
NORTHING: 5414117.43

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   Accepted.Rejected
2. Overlying water present?  
   Accepted.Rejected
3. Overlying water excessively turbid?  
   Accepted.Rejected
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   Accepted.Rejected
5. Desired penetration depth (4 to 6 inches) achieved?  
   Accepted.Rejected
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   Accepted.Rejected
7. Sample is:  
   Accepted.Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ______%  
Description: ______

pH of Sediment in Sampler: ______ su  
Description: ______

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

Amphipods:  
Debris(twigs/leaves):  
Other:  

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
<td>116-6552</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td>Time: 1209</td>
</tr>
<tr>
<td></td>
<td>Poran</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Other:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: ______ Time: ______ # Containers: ______ Volume: ______ %
Duplicate SE Sample ID: ______ Time: ______ # Containers: ______ Volume: ______ %
Split SE Samples (EPA/NPS/CCT): ______ Time: ______ # Containers: ______ Volume: ______ %
Pore Water (PW) Sample ID: ______ Time: ______ # Containers: ______ Volume: ______ %

Sample Lead Initials: ______ Date: 10/18/13  
Field Supervisor Initials: ______ Date: 10/19/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0539</td>
<td>11:37</td>
<td>MC</td>
<td>N/A</td>
<td>Site ID 2-C4</td>
</tr>
<tr>
<td>118-0540</td>
<td>11:38</td>
<td>MC</td>
<td>N/A</td>
<td>Upstream of site</td>
</tr>
<tr>
<td>118-0541</td>
<td>11:38</td>
<td>MC</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>118-0542</td>
<td>11:38</td>
<td>MC</td>
<td>South</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>118-0543</td>
<td>11:38</td>
<td>MC</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>118-0544</td>
<td>11:40</td>
<td>MC</td>
<td>N/A</td>
<td>Rejected grab #1 cobble</td>
</tr>
<tr>
<td>118-0545</td>
<td>11:46</td>
<td>MC</td>
<td>N/A</td>
<td>Rejected grab #2</td>
</tr>
<tr>
<td>118-0546</td>
<td>11:50</td>
<td>MC</td>
<td>N/A</td>
<td>Rejected grab #3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: JF  Date: 10/19/13
Sample Lead Initials: JL  Date: 10/18/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0547</td>
<td>11:54</td>
<td>Rejected grab #6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>empty</td>
</tr>
<tr>
<td>118-0548</td>
<td>11:57</td>
<td>Rejected grab #5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>118-0549</td>
<td>12:01</td>
<td>Rejected grab #6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cobble</td>
</tr>
<tr>
<td>118-0550</td>
<td>12:05</td>
<td>Rejected grab #7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cobble</td>
</tr>
<tr>
<td>118-0551</td>
<td>12:07</td>
<td>Rejected grab #8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>118-0552</td>
<td>12:09</td>
<td>Rejected grab #9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Sample Location Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10/18/13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>JRBN/SM</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>M. Endo</td>
</tr>
<tr>
<td>Station Identifier:</td>
<td>2-R5</td>
</tr>
<tr>
<td>Vessel:</td>
<td>Mazama</td>
</tr>
<tr>
<td>Vessel Crew:</td>
<td>RT/nc/6P</td>
</tr>
<tr>
<td>C.R. Observer:</td>
<td>D. Squintkin</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>10:12</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>11:12</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td>Coolee Dam</td>
</tr>
<tr>
<td>Weather Conditions Upon Arrival:</td>
<td></td>
</tr>
<tr>
<td>Temp (°F):</td>
<td>50</td>
</tr>
<tr>
<td>Wind (mph):</td>
<td>Calm &lt; 5</td>
</tr>
<tr>
<td>Clouds/Precipitation:</td>
<td>Fog</td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Boat Position:</td>
<td>Powered</td>
</tr>
<tr>
<td>River Mile:</td>
<td>73</td>
</tr>
<tr>
<td>Water Surface:</td>
<td>Calm</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>No</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>Homes both shores</td>
</tr>
<tr>
<td>River Current:</td>
<td>Calm</td>
</tr>
<tr>
<td>Boat Traffic:</td>
<td>Support boats white and pumpkin dorys</td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td></td>
</tr>
<tr>
<td>(see Photo Log for descriptions)</td>
<td></td>
</tr>
<tr>
<td>Photo ID:</td>
<td>113-0526</td>
</tr>
<tr>
<td>Time:</td>
<td>10:14</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>113-0528</td>
</tr>
<tr>
<td>Time:</td>
<td>10:14</td>
</tr>
<tr>
<td>Camera ID:</td>
<td>TA-2 pentax</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>113-0527</td>
</tr>
<tr>
<td>Time:</td>
<td>10:14</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>113-0529</td>
</tr>
<tr>
<td>Time:</td>
<td>10:14</td>
</tr>
<tr>
<td>General Notes:</td>
<td>complete (9) unsuccessful grabs. encountered mostly cobbles and open sampler.</td>
</tr>
</tbody>
</table>

C.R. - cultural resources

Field Supervisor Initials: [Signature] Date: 10/19/13

Sample Lead Initials: [Signature] Date: 10/18/13

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Location:</td>
<td>EASTING: 438212.77, NORTHING: 5415702.59</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

| Porewater |
| Cumulative Percent of Porewater Syringe filled: | |
| pH of Sediment in Sampler: | | |

| Sediment Characteristics |
| Type: | % Silt | (<1/16 mm) | Color: |
| % Sand | (1/16 - 2 mm) | Munsell Color Chart #: |
| % Gravel | | Description: |
| % Cobbles | | |
| % silica Glass: | | |

| Amphipods: | Tubes: | Macrophytes: |
| Debris(twigs/leaves): | | Other: |
| | | |

| Stratified sediment: | Yes | No |
| Sheen Present: | Yes | No |

| Sample Collected Using |
| Van Veen | Eckman | Ponor | Shovel |
| Sediment in Grab: | 18-0530 |
| Homogenized Sample: | |
| Other: | |

| Sediment (SE) Sample ID: | Time: | # Containers: | Volume: % |
| Duplicate SE Sample ID: | Time: | # Containers: | Volume: % |
| Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: % |
| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: % |

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: OK Date: 01/18/13
Field Supervisor Initials: H Date: 01/19/13
**Sediment/Porewater Sampling Form**  
*Upper Columbia River RI/FS*  
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Water Depth (feet):</th>
<th>8.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Sampler Penetration (inches):</td>
<td>open-empty</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1015</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Depth (feet):</th>
<th>8.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampler Penetration (inches):</td>
<td>open-empty</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1015</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt</th>
<th>(1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td></td>
<td>(1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

### Amphipods:
- [ ] None

### Debris (twigs/leaves):
- [ ] None

### Tubes:
- [ ] None

### Macrophytes:
- [ ] None

### Sediment Sample Collection

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers’s (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab: 118-223 Time: 1016</td>
</tr>
<tr>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Ponor</td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>%</td>
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</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Lead Initials:

<table>
<thead>
<tr>
<th>Date: 08/18/13</th>
<th>Field Supervisor Initials:</th>
<th>Date: 08/19/13</th>
</tr>
</thead>
</table>

---

Sample ID Format:

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

---

**URS**
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 2-R5

**Anchor Point (max 3):**  
Drop # 1 2 3  
**Cast Time:** 1018

**Angle (< 5° max):** Yes No  
**Water Depth (feet):** 8.20

**Sample Location:**  
EASTING: 438210.47  
NORTHING: 5415664.85  
(NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**

2. Overlying water present?  
   - **YES**  
   - **NO**

3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**  
   - **NO**

5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**

7. Sample is:  
   - Accepted
   - Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**  
  - Accepted
  - Rejected

- **pH of Sediment in Sampler:**

**Sediment Characteristics**

- **Type:**
  - % Silt  
  - % Sand  
  - % Gravel  
  - % Cobble  
  - % Silica Glass

- **Color:**
  - Munsell Color Chart #:  
  - Description:

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:**
  - None  
  - Hydrogen sulfide  
  - Other:

**Amphipods:**

**Debris (twigs/leaves):**

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td>Eckman</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
<td>Ponar</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td>Other</td>
<td>Time:</td>
</tr>
</tbody>
</table>

**Photo Numbers 's**

(see Photo Log for descriptions)

- **Sediment (SE) Sample ID:**  
  - Time:  
  - # Containers:  
  - Volume: %

- **Duplicate SE Sample ID:**  
  - Time:  
  - # Containers:  
  - Volume: %

- **Split SE Samples (EPA/NPS/CCT):**  
  - Time:  
  - # Containers:  
  - Volume: %

- **Pore Water (PW) Sample ID:**  
  - Time:  
  - # Containers:  
  - Volume: %

**Sample Lead Initials:**  
**Date:** 10/18/13  
**Field Supervisor Initials:**  
**Date:** 10/19/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>8.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2-3</td>
<td>10:20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>open cookie, empty</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:**  
NAD_83_UTM_Zone_11_North

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**  
Cumulative Percent of Porewater Syringe filled: ______%  
Accepted: ______  
Rejected: ______

**pH of Sediment in Sampler:** ______

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Redox Boundary</th>
<th>Odor</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td>Munsell Color Chart #:</td>
<td>Present?</td>
<td>Yes</td>
<td>Hydrogen sulfide</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

**Debris (twigs/leaves):**

**Tubes:**

**Macrophytes:**

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Time:</td>
<td>Time:</td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sheen Present:</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Time:</td>
<td>Time:</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers:**  
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: ______  
Date: 9/18/13

Field Supervisor Initials: ______  
Date: 9/19/13

[URS logo]
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>11.4'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>cobble, open, empty</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>Easting: 432714.31</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>11.4'</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of
channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle,
tilting upon retrieval)? **YES** **NO**
7. Sample is:  
   - Accepted
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: _%  
- Accepted  
- Rejected  
- pH of Sediment in Sampler: _su  
- Description: _

**Sediment Characteristics**

- Type: _
  - % Silt: _ (<1/16 mm)
  - % Sand: _ (1/16 - 2 mm)
  - % Gravel: _
  - % Cobbles: _
  - % Silica Glass: _
- Color: _
  - Munsell Color Chart #: _
  - Description: _
- Redox Boundary: _
  - Present?: _
  - If present -- Depth Below Sediment Surface (inches): _
- Odor: _
  - None
  - Hydrogen sulfide
  - Other: _

**Amphipods:** _
**Tubes:** _
**Other:** _
**Macrophytes:** _

**Sample Collected Using**

- Stratified sediment: Yes | No
- Sheen Present: Yes | No
- Van Veen
- Eckman
- Ponar
- Shovel
- Sediment in Grab:
- Homogenized Sample:
- Other:

**Photo Numbers'**

- Time: 10:23
- (see Photo Log for descriptions)

**Sediment (SE) Sample ID:** _
- Time: _
- # Containers: _
- Volume: _

**Duplicate SE Sample ID:** _
- Time: _
- # Containers: _
- Volume: _

**Split SE Samples (EPA/NPS/CCT):** _
- Time: _
- # Containers: _
- Volume: _

**Pore Water (PW) Sample ID:** _
- Time: _
- # Containers: _
- Volume: _

**Sample Lead Initials:** _
**Date:** 10/18/13
**Field Supervisor Initials:** _
**Date:** 10/19/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2-R5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 2.8</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 10:25</td>
<td>Sampler Penetration (inches): Cobble, open</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 432761.25 NORTING: 541571.18</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: _____% Accepted Rejected
pH of Sediment in Sampler: ___ ___ su Description:

Sediment Characteristics
Type:
% Silt (1/16 mm) ___
% Sand (1/16 - 2 mm) ___
% Gravel ___
% Cobble ___
% Silica Glass ___

Color:
Munsell Color Chart #: ___
Description:

Redox Boundary:
Present? Yes No
If present - Depth Below Sediment Surface (inches):

Odor:
None Hydrogen sulfide

Amphipods:
Debris (twigs/leaves):

Sample Collected Using
<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponor</th>
<th>Shovel</th>
</tr>
</thead>
</table>

Sediment in Grab: Sediment in Grab: Homogenized Sample: Other:

Photo Numbers's
(see Photo Log for descriptions)

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___%
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___%
Split SE Samples (EPA/NPS/CCT): ___# Containers: ___ Volume: ___%
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___%

Sample Lead Initials QQ Date: 6/24/13 Field Supervisor Initials PHQ Date: 6/28/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1027</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>EASTING:</td>
<td>432764.42</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5415677.11</td>
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**Sample Location:**

<table>
<thead>
<tr>
<th>Sample Acceptance Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
</tr>
<tr>
<td>7. Sample is:</td>
</tr>
</tbody>
</table>

**Porewater**

| Cumulative Percent of Porewater Syringe filled: | % |
| pH of Sediment in Sampler: | su |

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present – Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Van Veen</td>
</tr>
</tbody>
</table>

**Macrophytes:**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** | Date: 10/18/13 |
| Field Supervisor Initials: | Date: 9/19/13 |

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-R5

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1029
Angle (< 5" max) Yes No

Sample Location: EASTING: 438770.75 NAD_83_UTM_Zone_11_North
NORTHING: 5415695.74

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___ su Description: ___

Sediment Characteristics

Type: % Silt ___ (<1/16 mm)
% Sand ___ (1/16 - 2 mm)
% Gravel ___
% Cobbles ___
% Silica Glass: ___
Color: Munsell Color Chart #: ___
Description: ___
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): ___
Odor: None Hydrogen sulfide
Other: ___

Amphipods: ___
Debris(twigs/leaves): ___
Sample Collected Using
| Stratified sediment: Yes No | Sample ID: || Sediment in Grab: 
| Sheen Present: Yes No | Sediment Time: 10:30 |
| Van Veen | # Containers: || Other: |
| Eckman | Pavement | Homogenized Sample: |
| Ponar | || |
| Shovel | || |
| | || |

Photo Numbers's

Sediment (SE) Sample ID: _ Time: _ # Containers: _ Volume: _ %
Duplicate SE Sample ID: _ Time: _ # Containers: _ Volume: _ %
Split SE Samples (EPA/NPS/CCT): _ Time: _ # Containers: _ Volume: _ %
Pore Water (PW) Sample ID: _ Time: _ # Containers: _ Volume: _ %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials /S Date: 10/16/13 Field Supervisor Initials /D Date: 10/19/13

URS
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>2-R5</td>
</tr>
</tbody>
</table>

Anchor Point (max 3) 1 2 3  
Drop # 1 2 3  Cast Time 1031  
Angle (< 5°max) Yes No  
Water Depth (feet): 9.8  
Sampler Penetration (inches): Open - empty  
Cultural Resources Observed? No Yes

Sample Location: (NAD_83_UTM_Zone_11_North)  
EASTING: 432781.52  
NORTING: 5415735.14

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: _
Accepted Rejected

pH of Sediment in Sampler: ___ su Description: _____

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles % Silica Glass
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods: 
Debris(twigs/leaves):
Tubes: Other:

<table>
<thead>
<tr>
<th>Macrophytes:</th>
<th>Stratified sediment: Yes No</th>
<th>Sheen Present: Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
<td>Time: 1032</td>
</tr>
<tr>
<td>Eckman</td>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Ponor</td>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: JA Date: 08/18/13  
Field Supervisor Initials: OA Date: 09/19/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>118-0525</td>
<td>9:45</td>
<td>MC</td>
<td></td>
<td>Site ID</td>
</tr>
<tr>
<td>118-0526</td>
<td>10:14</td>
<td>MC</td>
<td>North</td>
<td>Upstream of site</td>
</tr>
<tr>
<td>118-0527</td>
<td>10:14</td>
<td>MC</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>118-0528</td>
<td>10:14</td>
<td>MC</td>
<td>South</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>118-0529</td>
<td>10:14</td>
<td>MC</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>118-0530</td>
<td>10:14</td>
<td>MC</td>
<td></td>
<td>Rejected grab #1</td>
</tr>
<tr>
<td>118-0531</td>
<td>10:16</td>
<td>MC</td>
<td></td>
<td>Rejected grab #2</td>
</tr>
<tr>
<td>118-0532</td>
<td>10:18</td>
<td>MC</td>
<td></td>
<td>Rejected grab #3</td>
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| Photo Log
| Upper Columbia River RI/FS
| 2013 Phase 2 Sediment Study |

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 2-R5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/18/13</td>
<td>Vessel: Mazama</td>
</tr>
<tr>
<td>Camera Serial #: TA-3 Pentax</td>
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</tr>
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<th>Time: 10:23</th>
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<th>Photographer: MC</th>
<th>Photo Orientation:</th>
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<th>Photographer: MC</th>
<th>Photo Orientation:</th>
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<table>
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<th>Photo ID:</th>
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<th>Photographer: MC</th>
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<table>
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<th>Photo Orientation:</th>
<th>Description:</th>
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</thead>
</table>

Field Supervisor Initials: JR Date: 10/19/13
Sample Lead Initials: JR Date: 10/18/13
Sample Location Form
Upper Columbia River R/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/17/13
Sampling Crew: NRM/SM
EPA Observer: M. Fazio
Arrival Time: 1448
River Stage: Water Surface Elev. (ft): 1286.5
Water Surface Elevation Source: Coulee Dam
Weather Conditions Upon Arrival
Temp (°F): 61
Wind (mph): calm < 5
Clouds/Precipitation: mostly clear, sunny

Site Information:
Boat Position: (Powered) (Anchored)
River Mile:
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No
Notable shore surface features:
(rock outcrops, streams, wetlands,
 oxbows, outfalls, roads, houses,
 campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID: TA-2 pentax
Photo ID: 117-0512 Time: 1447
Photo ID: 117-0513 Time: 1447
Photo ID: 117-0514 Time: 1447
Photo ID: 117-0515 Time: 1447

General Notes:
complete (9) grabs all unsuccessful.

C.R. - cultural resources
Field Supervisor Initials: CR Date: 10/17/13
Sample Lead Initials: OL Date: 10/17/13

URS
# Sediment/Porewater Sampling Form

## Upper Columbia River RI/FS

### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>2-87</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>0 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>23.9</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1451</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>Empty</td>
</tr>
</tbody>
</table>

### Sample Location:

| EASTING: | 4383982.21 |
| NORTHING: | 541482.59 |

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
</table>

pH of Sediment in Sampler: _su_ Description:

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

Color: **Munsell Color Chart #:** Description:

Redox Boundary: **Present?** **Yes** **No** If present -- Depth Below Sediment Surface (inches):

Odor: **None** **Hydrogen sulfide** Other:

### Amphipods:

| Debris (twigs/leaves): | Tubes: | Other: |

### Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers &quot;s</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: _R_ Date: _10/17/13_ Field Supervisor Initials: _DA_ Date: _10/17/13_
Project Number: 36310189
Station Identifier: 2-R7
Anchor Point (max 3) 1 2 3
Water Depth (feet): 21.3
Drop # 1 2 3 Cast Time 14:53
Sampler Penetration (inches): empty
Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes
Sample Location: EASTING: 43840 3 40 (NAD_83_UTM_Zone_11_North) NORTHING: 5419828.89
Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: _% Accepted Rejected
pH of Sediment in Sampler: _ su Description: _

Sediment Characteristics
Type: % Silt (%<1/16 mm) Color: Munsell Color Chart #: Description:
% Sand (1/16 - 2 mm) Redox Boundary: Yes No
% Gravel % Cobble % Silica Glass:

Amphipods: Debris(twigs/leaves): Tubes: Other: Macrophytes:
Stratified sediment: Yes No Sample Collected Using
Van Veen Eckman
Ponar Shovel
Sheen Present: Yes No Sediment in Grab: Homogenized Sample:
Time: Time: Other:
Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials Date: 10/17/13 Field Supervisor Initials Date: 10/17/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189

**Station Identifier:** 8-R7

**Anchor Point (max 3) 1 2 3**

**Drop # 1 2 3**

**Cast Time:** 1456

**Angle (< 5°max) Yes No**

**Sample Location:**

**EASTING:** 438398.14

**NORTHING:** 5414818.20

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES NO**
2. Overlying water present? **YES NO**
3. Overlying water excessively turbid? **YES NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES NO**
7. Sample is: Accepted Rejected

---

**Porewater**

**Cumulative Percent of Porewater Syringe filled:**

<table>
<thead>
<tr>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:**

<table>
<thead>
<tr>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

---

**Sediment Characteristics**

**Type:**

<table>
<thead>
<tr>
<th>% Silt (1&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
</tr>
</thead>
</table>

**Color:**

|Munsell Color Chart #: |
| Description: |

**Redox Boundary:**

<table>
<thead>
<tr>
<th>Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Sediment Surface (inches):**

| Odor: | None | Hydrogen sulfide |

---

**Amphipods:**

| Debris (twigs/leaves): |

| Sample Collected Using |
| Vanilla | Eckman | Ponnar | Shovel |

**Other:**

| Macrophytes: |

| Stratified sediment: Yes No |
| Sheen Present: Yes No |

**Sample Lead Initials:** 196

**Date:** 10/11/13

---

**Photo Numbers:**

| Sediment in Grab: |
| Sediment Sample ID: |
| Photographic Sample: |
| Sediment Time: |
| Pore Water Sample: |
| Sediment Volume: |
| Time: |
| Time: |

---

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2-R7

Anchor Point (max 3) __ 1 __ 2 __ 3
Water Depth (feet): 24.5

Drop #: __ 1 __ 2 __ 3 Cast Time: 1458
Sampler Penetration (inches): empty

Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes

Sample Location: EASTING: 438396.89 NORTHING: 5414798.25

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ____ su Description: __________

Sediment Characteristics
Type:
% Silt ___ (<1/16 mm)
% Sand ___ (1/16 - 2 mm)
% Gravel ___
% Cobble ___
% Silica Glass: ___
Color: Munsell Color Chart #: __________ Description: __________
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): __________
Odor: None Hydrogen sulfide
Other: __________

Amphipods: __________
Debris (twigs/leaves): __________
Sample Collected Using:
Sample Lead Initials: __________
Sample ID Format:
Van Veen __________ Van Veen
Eckman __________ Eckman
Ponar ____________ Ponar
Shovel ____________ Shovel
Other: __________

Photo Numbers:
(see Photo Log for descriptions)
Sediment in Grab: 112-C519 Time: 1459
Homogenized Sample: __________ Time: __________
Other: __________ Time: __________

Sediment (SE) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %
Duplicate SE Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %
Split SE Samples (EPA/NPS/CCT): __________ Time: __________ # Containers: __________ Volume: __________ %
Pore Water (PW) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: __________ Date: 10/17/13 Field Supervisor Initials: __________ Date: 10/17/13
### Sediment/Porewater Sampling Form

#### Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet): 2410</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time: 1500</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td><em>empty</em></td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td></td>
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<tr>
<td>EASTING:</td>
<td>438415.24</td>
<td></td>
</tr>
<tr>
<td>NORTHING:</td>
<td>54147927.73</td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

#### Porewater
- Cumulative Percent of Porewater Syringe filled: 0%
- Accepted Rejected
- pH of Sediment in Sampler: su Description:

#### Sediment Characteristics
- Type: % Silt (1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass
- Color: Munsell Color Chart #: Description:
- Redox Boundary: Present? Yes No
- Odor: None Hydrogen sulfide Other:

#### Amphipods:
- Debris (twigs/leaves):
- Other:
- Macrophytes:

#### Stratified Sediment:
- Yes No
- Sheen Present: Yes No

#### Sample Collected Using:
- Van Veen
- Eckman
- Ponor
- Shovel

#### Photo Numbers:
- Sediment in Grab: 1522
- Homogenized Sample: 1522

#### Sediment (SE) Sample ID:
- Time: 
- # Containers: 
- Volume: 

#### Duplicate SE Sample ID:
- Time: 
- # Containers: 
- Volume:

#### Split SE Samples (EPA/NPS/CCT):
- Time: 
- # Containers: 
- Volume:

#### Pore Water (PW) Sample ID:
- Time: 
- # Containers: 
- Volume:

#### Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2


## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

### Project Number:
36310189

### Station Identifier:
2-K7

### Anchor Point (max 3)
1 2 3

### Water Depth (feet):
16.5'

### Drop #
1 2 3

### Cast Time:
1503

### Sampler Penetration (inches):
empty

### Angle (< 5' max)
Yes No

### Cultural Resources Observed?
No Yes

### Sample Location:
EASTING: 438360.64 NAD_83_UTM_Zone_11_North
NORTHING: 5414773.25

### Sample Acceptance Criteria:

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>channeling or sample washout?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle,</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>tilting upon retrieval)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

### Porewater

| Cumulative Percent of Porewater Syringe filled: | % |
| Description:                     |    |

| pH of Sediment in Sampler: |    |
| Description:              |    |

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Munsell Color Chart #:</td>
<td>Description:</td>
<td>Redox Boundary:</td>
<td>Present:</td>
<td>No</td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td>If present -- Depth Below</td>
<td>Sediment Surface (inches):</td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Other:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab</td>
<td>Homogenized Sample</td>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

### Photo Numbers' s

<table>
<thead>
<tr>
<th>(see Photo Log for descriptions)</th>
<th>Time: 1503</th>
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<tbody>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

### Sample Lead Initials:

<table>
<thead>
<tr>
<th>Date: 10/17/13</th>
<th>Field Supervisor Initials: KO Date: 9/17/13</th>
</tr>
</thead>
</table>

### Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

### URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 2-K7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 25.5'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1507</td>
<td>Sampler Penetration (inches): empty</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: [NAD_83_UTM_Zone_11_North]</td>
<td></td>
</tr>
<tr>
<td>EASTING: 438395.51</td>
<td>NORTHING: 541475.31</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___ su Description: ___

Sediment Characteristics
Type:
- % Silt: (-1/16 mm)
- % Sand: (1/16 - 2 mm)
- % Gravel:
- % Cobbles:
- % Silica Glass:

Color: Munsell Color Chart #: Description: ___
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide
Other: ___

Amphipods:
- Debris(twigs/leaves):
- Tubes: ___
- Other:

Macrophytes:
- Stratified sediment: Yes No
- Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers (see Photo Log for descriptions)
Sediment in Grab: 1A7-0822 Time: 1508
Homogenized Sample: ___ Time: ___
Other: ___ Time: ___

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials ___ Date: 01/17/13 Field Supervisor Initials ___ Date: 09/17/13

URS
**Sediment/Porewater Sampling Form**  
Upper Columbia River RL/FS  
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 2-R7

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet)</th>
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<tr>
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<th>Cast Time</th>
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<td>1 2 3</td>
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<table>
<thead>
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<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
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</table>

**Sample Location:** 4388365.24, EASTING: NAD_83_UTM_Zone_11_North  
NOORTHING: 5418817.60

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted  
   - Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled:  
- pH of Sediment in Sampler:  
- Description:

### Sediment Characteristics

- Type:  
  - % Silt (<1/16 mm)  
  - % Sand (1/16 - 2 mm)  
  - % Gravel  
  - % Cobbles  
  - % Silica Glass:  
- Color: Munsell Color Chart #:  
- Description:

### Amphipods:

- Debris (twigs/leaves):
- Stratified sediment:  
- Sheen Present:  
- Sample Collected Using:
  - Van Veen  
  - Eckman  
  - Ponar  
  - Shovel

### Sediment (SE) Sample ID:

- Time:  
- # Containers:  
- Volume:  
- %

### Duplicate SE Sample ID:

- Time:  
- # Containers:  
- Volume:  
- %

### Split SE Samples (EPA/NPS/CCT):

- # Containers:  
- Volume:  
- %

### Pore Water (PW) Sample ID:

- Time:  
- # Containers:  
- Volume:  
- %

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:**  
Field Supervisor Initials: OA

**Date:** 10/17/13  
**Date:** 10/17/13

**URS**
### Sediment/Porewater Sampling Form

**Upper Columbia River R/FS**

**2013 Phase 2 Sediment Study**

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<th>Station Identifier</th>
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<td>2-67</td>
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<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet)</th>
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</thead>
<tbody>
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<td>1 2 3</td>
<td>26.4</td>
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<table>
<thead>
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<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
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<tbody>
<tr>
<td>1 2 3</td>
<td>1515</td>
<td>Empty</td>
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<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Sample Location</th>
<th>EASTING:</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>541 873 81</td>
<td>NORTING: 438 380, 32</td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

#### Porewater

- Cumulative Percent of Porewater Syringe filled: **__%**
- pH of Sediment in Sampler: **__**
- Description: **__**

#### Sediment Characteristics

- Type:
  - % Silt: **__(<1/16 mm)__**
  - % Sand: **__**(1/16 - 2 mm)
  - % Gravel: **__**
  - % Cobbles: **__**
  - % Silica Glass: **__**

- Color: **Munsell Color Chart #:**
  - Description: **__**

- Redox Boundary:
  - Present? **Yes**
  - If present -- Depth Below Sediment Surface (inches): **__**

- Odor: None
  - Hydrogen sulfide
  - Other: **__**

#### Amphipods:
- Debris (twigs/leaves):
- Tubes:
- Macrophytes:
- Stratified sediment: **Yes**
- Sheen Present: **Yes**

#### Photo Numbers’
- (see Photo Log for descriptions)
  - Sediment in Grab: **117-0529**
  - Time: **1514**
  - Homogenized Sample: **__**
  - Time: **__**

#### Sediment (SE) Sample ID:
- Time: **__**
- # Containers: **__**
- Volume: **__**

#### Duplicate SE Sample ID:
- Time: **__**
- # Containers: **__**
- Volume: **__**

#### Split SE Samples (EPA/NPS/CCT):
- # Containers: **__**
- Volume: **__**

#### Pore Water (PW) Sample ID:
- Time: **__**
- # Containers: **__**
- Volume: **__**

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>117-0511</td>
<td>1436</td>
<td>MC</td>
<td></td>
<td>Station 2-R7</td>
</tr>
<tr>
<td>117-0512</td>
<td>1447</td>
<td>MC</td>
<td>north</td>
<td>upriver 2-R7</td>
</tr>
<tr>
<td>117-0513</td>
<td>1447</td>
<td>MC</td>
<td>east</td>
<td>east shore</td>
</tr>
<tr>
<td>117-0514</td>
<td>1447</td>
<td>MC</td>
<td>south</td>
<td>south down river</td>
</tr>
<tr>
<td>117-0515</td>
<td>1447</td>
<td>MC</td>
<td>west</td>
<td>west shore</td>
</tr>
<tr>
<td>117-0516</td>
<td>1452</td>
<td>MC</td>
<td></td>
<td>grab #1</td>
</tr>
<tr>
<td>117-0517</td>
<td>1454</td>
<td>MC</td>
<td></td>
<td>grab #2</td>
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<td>117-0518</td>
<td>1457</td>
<td>MC</td>
<td></td>
<td>grab #3</td>
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</table>
### Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project:** 36310189
**Camera Serial #:** TA-2 pentax

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>117-0519</td>
<td>1459</td>
<td>MC</td>
<td></td>
<td>grab #4</td>
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<td></td>
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<td>117-0520</td>
<td>1502</td>
<td>MC</td>
<td></td>
<td>grab #5</td>
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<td>117-0521</td>
<td>1504</td>
<td>MC</td>
<td></td>
<td>grab #6</td>
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<td>117-0522</td>
<td>1508</td>
<td>MC</td>
<td></td>
<td>grab #7</td>
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<td>117-0523</td>
<td>1512</td>
<td>MC</td>
<td></td>
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<td>117-0524</td>
<td>1514</td>
<td>MC</td>
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<td>grab #9</td>
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</table>

**Field Supervisor Initials:**
**Sample Lead Initials:**

**Date:** 10/17/13
**Date:** 10/13/17
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189  
Date: 10/8/13  
Sampling Crew: Rapp/hayes/macDav  
EPA Observer: 
Arrival Time: 12:50  
Station Identifier: 3B-C2  
Vessel: Tahoma  
Vessel Crew: Turley/sharff/collins  
C.R. Observer: Depuyt  
Departure Time: 1510  
River Stage: Water Surface Elev. (ft): 1265.6  
Water Surface Elevation Source: Cruise Dam  
Weather Conditions Upon Arrival  
Temp (°F): 65  
Wind (mph): 0.5  
Clouds/Precipitation: partly cloudy  
Site Information:  
Boat Position: (Powered) (Anchored)  
River Mile: 719  
Water Surface: (Calm) (Small Waves) (Choppy)  
Surface Vegetation Present: Yes No  
Was Vegetation Removed: Yes No  
Notable shore surface features: (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)  
Sample Location Photo IDs:  
(see Photo Log for descriptions)  
Photo ID: 111-0352 Time: 1302  
Photo ID: 111-0353 Time: 1302  
Photo ID: 111-0354 Time: 1302  
Photo ID: 111-0355 Time: 1302  
Camera ID: TA-2 PROTAX  
General Notes:  
C.R. - cultural resources  
Field Supervisor Initials  
Sample Lead Initials  
Date: 10/8/13  
Date: 10/8/13  
URS
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
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<tbody>
<tr>
<td>36310189</td>
<td>3B-C2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max):</th>
<th>Cultural Resources Observed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location: (NAD_83_UTM_Zone_11_North)</th>
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</thead>
<tbody>
<tr>
<td>EASTING:</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO  
2. Overlying water present?  
   - YES  
   - NO  
3. Overlying water excessively turbid?  
   - YES  
   - NO  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO  
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO  
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled:  
- Accepted  
- Rejected

pH of Sediment in Sampler:  
- Accepted  
- Rejected

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Redox Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td>Munsell Color Chart #5Y 3/1</td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>% Sand</td>
<td>Description: Dark Gray</td>
<td>Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
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</tbody>
</table>

**Amphipods:**  
- Debris (twigs/leaves):  
- Other:  

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Sheen Present:</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
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<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>11-0356</td>
<td>Time: 13 02</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
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<table>
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<tr>
<th>Duplicate SE Sample ID:</th>
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<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
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<table>
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<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
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<tr>
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<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
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<tbody>
<tr>
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**Sample Lead Initials:**  
- Field Supervisor Initials:  
- Date: 10/18/13  
- Date: 09/10/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>3B-CQ</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>15</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

| Sample Location: | (NAD_83_UTM_Zone_11_North) |
| EASTING: | 426130.57 |
| NORTHING: | 7473728 |

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>NP su</td>
</tr>
<tr>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td>Munsell Color Chart #:</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td>Redox Boundary:</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td>Depth Below Sediment Surface (inches):</td>
</tr>
</tbody>
</table>

**Amphipods:**

- None
- Hydrogen sulfide

**Debris(twigs/leaves):**

**Tubes:**

**Other:**

**Macrophytes:**

**Stratified sediment:**

- Yes
- No

**Sheen Present:**

- Yes
- No

**Sample Collected Using:**

- Van Veen
- Eckman
- Ponar
- Shovel

**Sediment in Grab:**

**Homogenized Sample:**

**Photo Numbers:**

- (see Photo Log for descriptions)

**Sediment (SE) Sample ID:**

**Time:**

**# Containers:**

**Volume:**

**%**

**Duplicate SE Sample ID:**

**Time:**

**# Containers:**

**Volume:**

**%**

**Split SE Samples (EPA/NPS/CCT):**

**Time:**

**# Containers:**

**Volume:**

**%**

**Pore Water (PW) Sample ID:**

**Time:**

**# Containers:**

**Volume:**

**%**

**Sample Lead Initials:**

**Date:**

**Field Supervisor Initials:**

**Date:**

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 3B-C2

Anchor Point (max 3) 123
Drop # 123 Cast Time
Angle (< 5°max) Yes No
Sample Location: 426113.7443043470.70

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: ___ Description:

Sediment Characteristics
Type:
% Silt (1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass

Color: Munsell Color Chart #: Description:

Redox Boundary:
Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor:
None
Hydrogen sulfide
Other:

Amphipods:
Debris (twigs/leaves):

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Other:

Stratified sediment: Yes No
Sheen Present: Yes No

Photo Numbers’
(Sample Log for descriptions)

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ Time: ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample Lead Initials: ___ Date: ___ Field Supervisor Initials: ___ Date: ___

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1307</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>14.8</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>11</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>( \text{EASTING:} 426133.81, \text{NORTHING:} 5404744.78 ) (NAD_83_UTM_Zone_11_North)</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

#### Porewater
- Cumulative Percent of Porewater Syringe filled: **100%**
- pH of Sediment in Sampler: **7.98**
- Description: **Accepted**

#### Sediment Characteristics
- Type: % Silt \( <1/16 \text{mm} \) 60
- % Sand \( 1/16 - 2 \text{ mm} \) 40
- % Gravel
- % Cobbles
- % Silica Glass:
- Color: Munsell Color Chart #: 5Y 3/2
- Description: **Dark gray**
- Redox Boundary: **Present**
- If present -- Depth Below Sediment Surface (inches): **5**
- Odor: **None**
- Other: **Hydrogen sulfide**

#### Amphipods:
- Debris(twigs/leaves):
- Other:

#### Tubes:
- Stratified sediment: Yes
- Sheen Present: Yes

#### Macrophytes:
- Sample Collected Using
  - Van Veen
  - Eckman
  - Ponar
  - Shovel
- Other:

#### Sediment (SE) Sample ID: SE-88-1C2
- Time: 1445
- # Containers: 4
- Volume: 100%

#### Duplicate SE Sample ID: 
- Time: 
- # Containers: 
- Volume: 

#### Split SE Samples (EPA/NPS/CCT):
- Time: 
- # Containers: 
- Volume: 

#### Pore Water (PW) Sample ID: PW-34-1C2
- Time: 1435
- # Containers: 3
- Volume: 100%

#### Sample Lead Initials: 
**JL** Date: 10/3/13
**Field Supervisor Initials:** CA Date: 10/4/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
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<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>41-0351</td>
<td>12:54</td>
<td>BM</td>
<td></td>
<td>Station ID 3B-C2</td>
</tr>
<tr>
<td>41-0352</td>
<td>13:02</td>
<td>BM</td>
<td></td>
<td>North</td>
</tr>
<tr>
<td>3B-C2</td>
<td></td>
<td></td>
<td></td>
<td>Upstream of site</td>
</tr>
<tr>
<td>111-0353</td>
<td>13:02</td>
<td>BM</td>
<td>East</td>
<td>Left bank</td>
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<tr>
<td>111-0354</td>
<td>13:02</td>
<td>BM</td>
<td>West</td>
<td>Right bank</td>
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<td>111-0355</td>
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<td>BM</td>
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<td>Downstream of site</td>
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<td>111-0356</td>
<td>13:00</td>
<td>BM</td>
<td></td>
<td>Rejected Sample 111</td>
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<td>111-0357</td>
<td>13:04</td>
<td>BM</td>
<td></td>
<td>Rejected Sample 111</td>
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<tr>
<td>111-0358</td>
<td>13:11</td>
<td>BM</td>
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<td>SE Sediment 111</td>
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<td>Photo ID</td>
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<tr>
<td>111-12.59</td>
<td>13:13</td>
<td>BM</td>
<td></td>
<td>SE Scoop, Grab #3, Embedded Vegetation</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>111-13.60</td>
<td>14:35</td>
<td>BM</td>
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<td>Homogenized Sample</td>
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</tr>
</tbody>
</table>
### Sample Location Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

- **Project Number:** 36310189
- **Station Identifier:** 38-C4
- **Vessel:** Tahoea
- **EPA Observer:** (Missing)
- **Arrival Time:** 10:30
- **Weather Conditions Upon Arrival:** Mostly cloudy, light rain
- **River Mile:** 114
- **Weather Conditions Upon Arrival:** Mostly cloudy, light rain
- **Water Surface Elevation Source:** Colee Dam
- **River Current:** Swift
- **Boat Traffic:** Support boats going and cary.
- **Water Surface:** Calm
- **Surface Vegetation Present:** Yes
- **Was Vegetation Removed:** No
- **Notable Shore Surface Features:** Boat dock west shore.

**Sample Location Photo IDs:**
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>111-0340</td>
<td>10:38</td>
<td>7A-2 pentax</td>
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<tr>
<td>111-0342</td>
<td>10:38</td>
<td>111-0341</td>
</tr>
<tr>
<td></td>
<td></td>
<td>111-0343</td>
</tr>
</tbody>
</table>

**General Notes:**

- **C.R. - Cultural Resources**
- **Field Supervisor Initials:** 94  
  **Date:** 10/13/13
- **Sample Lead Initials:** 9K  
  **Date:** 10/8/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3B-C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 46.2</td>
</tr>
<tr>
<td>Drop # 1 2 3</td>
<td>Cast Time: 10:35</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes</td>
<td>Sampler Penetration (inches): NR</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>Sample Acceptance Criteria:</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present? YES NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid? YES NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved? YES NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is: Accepted Rejected</td>
<td></td>
</tr>
</tbody>
</table>

#### Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: NR ___u Description: ___

#### Sediment Characteristics
<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (1/16 mm)</td>
<td>Munsell Color Chart #:</td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td>Odor: None Hydrogen sulride</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

#### Amphipods:
Debris (twigs/leaves): |

#### Tubes:
Sample Collected Using |

#### Macrophytes:
Stratified sediment: Yes No |
Sheen Present: Yes No |
Sediment (SE) Sample ID: Time: # Containers: Volume: % |
Duplicate SE Sample ID: Time: # Containers: Volume: % |
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: % |
Pore Water (PW) Sample ID: Time: # Containers: Volume: % |

Sample Lead Initials: Date: Field Supervisor Initials: Date: 09/18/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 3B-C4

Anchor Point (max 3) 1 2 3
Water Depth (feet): 48.0

Drop # 1 2 3 Cast Time 16:40
Sampler Penetration (inches): unknown

Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes

Sample Location: 422.143.35 (NAD_83_UTM_Zone_11_North)
EASTING: N378143.53
NORTHING: N378143.53

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: empty

Sample Acceptance Criteria:

Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler:

Sediment Characteristics
Type: % Silt (%<1/16 mm)
% Sand (%1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Color: Munsell Color Chart #:
Description:

Redox Boundary:
Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris/twigs/leaves:
Tubes:
Other:

Macrophytes:
Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers 's
(see Photo Log for descriptions)

Sediment (SE) Sample ID:
Time:
# Containers:
Volume:

Duplicate SE Sample ID:
Time:
# Containers:
Volume:

Split SE Samples (EPA/NPS/CCT):
Time:
# Containers:
Volume:

Pore Water (PW) Sample ID:
Time:
# Containers:
Volume:

Sample Lead Initials:
Date: 10/18/13
Field Supervisor Initials:
Date: 10/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189

**Station Identifier:** 3B-C4

**Anchor Point (max 3):** 1 2 3

**Water Depth (feet):** 48.0

**Drop #** 1 2 3 **Cast Time:** 1046

**Sampler Penetration (inches):** Little to no

**Sample Location:** 422186.72 (NAD_83_UTM_Zone_11_North) NORTING: 539811.763

---

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  **NO**
2. Overlying water present? **YES**  **NO**
3. Overlying water excessively turbid? **YES**  **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  **NO**
7. Sample is: mostly empty

---

### Porewater

- Cumulative Percent of Porewater Syringe filled: 
- pH of Sediment in Sampler: 
- Description:

---

### Sediment Characteristics

- **Type:**
  - % Silt:  
  - % Sand:  
  - % Gravel:  
  - % Cobbles:  
  - % Silica Glass:

- **Color:**
- Munsell Color Chart #:
- Description:

- **Redox Boundary:**
- Present? **Yes**  **No**
- If present -- Depth Below Sediment Surface (inches): 

- **Odor:**
- None
- Hydrogen sulfide
- Other:

---

### Amphipods:

- Debris (twigs/leaves):

<table>
<thead>
<tr>
<th>Amphipods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

---

### Debris (twigs/leaves):

- Other:

---

### Sample Collected Using:

- Van Veen
- Eckman
- Ponar
- Shovel

### Photo Numbers:

(see Photo Log for descriptions)

- Sediment in Grab: 111-0346
- Homogenized Sample: Time:
- Other: Time:

---

### Sediment (SE) Sample ID:

- Time: 
- # Containers: 
- Volume: 

### Duplicate SE Sample ID:

- Time: 
- # Containers: 
- Volume: 

### Split SE Samples (EPA/NPS/CCT):

- # Containers: 
- Volume: 

---

### Pore Water (PW) Sample ID:

- Time: 
- # Containers: 
- Volume: 

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:** 
**Date:** 10/2/13

**Field Supervisor Initials:** 
**Date:** 10/9/13
# Sediment/Porewater Sampling Form

## Upper Columbia River RI/FS

### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>47.8</td>
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<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time:</td>
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<tr>
<td>Sampler Penetration (inches):</td>
<td>none</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD 83 UTM Zone 11 North)</td>
</tr>
<tr>
<td>EASTING:</td>
<td>422135.75</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5398669.64</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES NO**
2. Overlying water present? **YES NO**
3. Overlying water excessively turbid? **YES NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES NO**
7. Sample is: **Accepted Rejected**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>% Accepted Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su Description:</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass:</th>
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<tbody>
<tr>
<td>Color:</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td>None Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other:</td>
<td></td>
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### Amphipods:

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
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<tr>
<td>Sheen Present:</td>
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<tr>
<td>Sample Collected Using</td>
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<tr>
<td>Van Veen</td>
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<td>Sediment in Grab:</td>
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<tr>
<td>Time:</td>
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<td>Other:</td>
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### Photo Numbers’$s$

(see Photo Log for descriptions)

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<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
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<td>Duplicate SE Sample ID:</td>
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<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume: %</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

### Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** [Initials]

**Date:** 08/31/13

**Field Supervisor Initials:** [Initials]

**Date:** 09/10/13

**URS**
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

#### Project Number: 36310189

#### Station Identifier: 3B-C4

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>43.0</td>
<td>1</td>
<td>1057</td>
</tr>
</tbody>
</table>

#### Angle (< 5°max)

- No

#### Cultural Resources Observed?

- No

#### Sample Location:

- **EASTING:** 422099.08  
- **NORTHING:** 539870.33

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES

2. Overlying water present?  
   - YES

3. Overlying water excessively turbid?  
   - YES

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES

#### Sample is:

- Accepted

#### Porewater

- Cumulative Percent of Porewater Syringe filled: ___
- pH of Sediment in Sampler: ___
- Description: ___

#### Sediment Characteristics

- **Type:** % Silt (1/16 - 2 mm)  
- **Color:** Munsell Color Chart #:
- **Redox Boundary:** Present? Yes  
- **Odor:** None

#### Amphipods:

- % Silica Glass:

#### Debris(twigs/leaves):

- % Sand (1/16 - 2 mm)

#### Tubes:

- % Gravel

#### Other:

- % Cobbles

#### Macrophytes:

- % Silica Glass:

#### Stratified sediment: Yes  

#### Sheen Present: Yes

#### Sample Collected Using:

- Van Veen
- Eckman
- Ponar
- Shovel
- Other

#### Sediment in Grab:

- Time: 111-0249

#### Homogenized Sample:

- Time: 1101

#### Other:

#### Sediment (SE) Sample ID:

- Time: ___  
- # Containers: ___  
- Volume: ___

#### Duplicate SE Sample ID:

- Time: ___  
- # Containers: ___  
- Volume: ___

#### Split SE Samples (EPA/NPS/CCT):

- Time: ___  
- # Containers: ___  
- Volume: ___

#### Pore Water (PW) Sample ID:

- Time: ___  
- # Containers: ___  
- Volume: ___

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** [X]  
**Date:** 10/8/13

**Field Supervisor Initials:** [X]  
**Date:** 9/14/13

---

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3B-64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 42.4</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 110 5</td>
<td>Sampler Penetration (inches): 8</td>
</tr>
<tr>
<td>Angle (&lt; 5&quot;max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 482695.39 NORTING: 6398702.58</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Cumulative Percent of Porewater Syringe filled: Accepted Rejected
pH of Sediment in Sampler: 8.03 su Description:

Sediment Characteristics:
- Type: % Silt 98 (<1/16 mm) Color: Munsell Color Chart #: 5Y 3/1
- % Sand 2 (1/16 - 2 mm) Description: very dark gray
- % Gravel
- % Cobbles
- % Silica Glass:

Amphipods: Tubers: Other:
Debris(twigs/leaves):

Sample Collected Using photo numbers:
- Van Veen
- Eckman
- Ponar
- Shovel

Sediment (SE) Sample ID: SE-3B-64 Time: 1157 # Containers: 4/1 Volume: 4.100/82 %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: RW-3B-64 Time: 1147 # Containers: 3 Volume: 3.100 %

Sample Lead Initials Date: Field Supervisor Initials Date:

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
## Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>311-0239</td>
<td>10:39</td>
<td>BM</td>
<td></td>
<td>Station ID 3B-C4</td>
</tr>
<tr>
<td>311-0340</td>
<td>10:38</td>
<td>BM</td>
<td>North</td>
<td>Upstream of site</td>
</tr>
<tr>
<td>311-0341</td>
<td>10:38</td>
<td>BM</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>311-0342</td>
<td>10:38</td>
<td>BM</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>311-0343</td>
<td>10:39</td>
<td>BM</td>
<td>South</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>311-0344</td>
<td>10:39</td>
<td>BM</td>
<td></td>
<td>Rejected sample grab #1</td>
</tr>
<tr>
<td>311-0345</td>
<td>10:42</td>
<td>BM</td>
<td></td>
<td>Rejected sample grab #2</td>
</tr>
<tr>
<td>311-0346</td>
<td>10:49</td>
<td>BM</td>
<td></td>
<td>Rejected sample grab #3</td>
</tr>
</tbody>
</table>

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**Field Supervisor Initials:**  
**Date:** 10/10/13

**Sample Lead Initials:**  
**Date:** 10/8/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>111-0347</td>
<td>11:01</td>
<td>BM</td>
<td></td>
<td>SE Sample, Grab #5</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>111-0348</td>
<td>11:12</td>
<td>BM</td>
<td></td>
<td>SE Sample, Grab #6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111-0349</td>
<td>11:13</td>
<td>BM</td>
<td></td>
<td>SE Sample, Grab #6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111-0350</td>
<td>11:56</td>
<td>BM</td>
<td></td>
<td>Homogenized Sample, 3B-C4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: 3B-R1
Date: 10/14/13  Vessel: Mazama
Sampling Crew: TK/BM/M  Vessel Crew: Tundeau/Polling/Posey
EPA Observer: Mark  C.R. Observer: R. Depuyet
Arrival Time: 09:54  Departure Time: 12:27

River Stage:
- Water Surface Elev. (ft): 1286.7
- Water Surface Elevation Source: Glacier Dam

Weather Conditions Upon Arrival
- Temp (°F): 38
- Wind (mph): Calm
- Clouds/Precipitation: Mostly clear

Site Information:
- Boat Position: (Powered) (Anchored)
- River Mile:
- Water Surface: (Calm) (Small Waves) (Choppy)
- Surface Vegetation Present: Yes  No
- Was Vegetation Removed: Yes  No
- Notable shore surface features: (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

<table>
<thead>
<tr>
<th>Sample Location Photo IDs:</th>
<th>Camera ID: TA-2 Pentax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo ID: 114-0378  Time: 09:50</td>
<td>Photo ID: 114-0380  Time: 09:51</td>
</tr>
<tr>
<td>Photo ID: 114-0381  Time: 09:51</td>
<td>Photo ID: 114-0382  Time: 09:52</td>
</tr>
</tbody>
</table>

General Notes:
- Complete (9) drops all unsuccessful. Drop #8 likely too coarse material.

C.R. - cultural resources
Field Supervisor Initials:  Date: 10/15/13
Sample Lead Initials:  Date: 10/14/13
<table>
<thead>
<tr>
<th>Sample Acceptance Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
</tr>
<tr>
<td>7. Sample is:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Porewater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Percent of Porewater Syringe filled:</td>
</tr>
<tr>
<td>pH of Sediment in Sampler:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris (twigs/leaves):</td>
</tr>
<tr>
<td>Stratified sediment:</td>
</tr>
<tr>
<td>Sheen Present:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Homogenized Sample:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: [Signature]  Date: 10/14/13  Field Supervisor Initials: [Signature]  Date: 10/15/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: 3B-R1
Anchor Point (max 3) 1 2 3 Water Depth (feet): 78.5
Drop # 1 2 3 Cast Time 10:25 Sampler Penetration (inches): Unknown
Angle (< 5' max) Yes No Cultural Resources Observed? No Yes
Sample Location: EASTING: 426244.43 Sample Acceptance Criteria:
NORTHING: 5406872.15

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: NR su Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) Color: Munsell Color Chart #:
% Sand (1/16 - 2 mm) Description:
% Gravel % Cobbles % Silica Glass:
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris (twigs/leaves): Other:

Stratified sediment: Yes No Sample Collected Using
Sheen Present: Yes No Sediment in Grab:
Van Veen
Eckman
Ponar
Shovel
Homogenized Sample:

Photo Numbers ’s
(see Photo Log for descriptions)
Sediment: Time:
Duplicate SE Sample ID: Time:
Pore Water (PW) Sample ID: Time:

Sample Lead Initials ____ Date: ____ Field Supervisor Initials urs Date: 10/15/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>8.23</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>10:31</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>N/A</td>
</tr>
<tr>
<td>Angle (&lt; 5 max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 426242.30</td>
</tr>
<tr>
<td></td>
<td>NORTHING: 5406841.47</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>N/R su</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(≤1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #:</th>
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<tbody>
<tr>
<td>Description:</td>
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<table>
<thead>
<tr>
<th>Redox</th>
<th>Present?</th>
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</thead>
<tbody>
<tr>
<td>Boundary:</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubes:</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Photographs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td>10:31</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
</table>
| # Containers: |Volume: %
| Other: |Time: |

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
</tr>
</thead>
</table>
| # Containers: |Volume: %
| Other: |Time: |

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
</tr>
</thead>
</table>
| # Containers: |Volume: %
| Other: |Time: |

**Sample Lead Initials:** [Signature]

**Date:** 10/14/13

**Field Supervisor Initials:** [Signature]

**Date:** 10/15/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>3B-R1</td>
</tr>
</tbody>
</table>

- **Anchor Point (max 3)**: 1 2 3
- **Drop #**: 1 2 3
- **Cast Time**: 10:47
- **Water Depth (feet)**: 76.2
- **Sampler Penetration (inches)**: N/A
- **Cultural Resources Observed?**: Yes
- **Sample Location**: (NAD_83_UTM_Zone_11_North)
- **EASTING**: 426,275.08
- **NORTHING**: 640,6850.96

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted

### Porewater
- **Cumulative Percent of Porewater Syringe filled**: %
- **pH of Sediment in Sampler**: NR
- **Description**: Accepted

### Sediment Characteristics
- **Type**: % Silt (<1/16 mm), % Sand (1/16 - 2 mm), % Gravel, % Cobble
- **Color**: Munsell Color Chart #:
- **Description**:
- **Reflux Boundary**: Present? Yes
- **Sediment Surface (inches)**: Other:
- **Odor**: None, Hydrogen sulfide

### Amphipods:
- **Debris (twigs/leaves)**:  
- **Tubes**:
- **Other**:
- **Macrophytes**:

### Sample Collected Using
- **Van Veen**: Sediment in Grab:__ Time:__
- **Eckman**: Homogenized Sample:__ Time:__
- **Ponar**: Other:__ Time:__
- **Shovel**:

### Sediment (SE) Sample ID:
- **Time**:__ # Containers:__ Volume:__ %

### Duplicate SE Sample ID:
- **Time**:__ # Containers:__ Volume:__ %

### Split SE Samples (EPA/NPS/CCT):
- **Time**:__ # Containers:__ Volume:__ %

### Pore Water (PW) Sample ID:
- **Time**:__ # Containers:__ Volume:__ %

---

**Sample Lead Initials**

**Date**: 10/14/13

**Field Supervisor Initials**: 10A

**Date**: 10/15/13

**Sample ID Format**:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>3B-R1</td>
</tr>
</tbody>
</table>

**Anchor Point (max 3)**

1 2 3

**Water Depth (feet):** 81.6

**Drop #**

1 2 3

**Cast Time:** 10:54

**Sampler Penetration (inches):** N/A

**Angle (< 5’max)**

Yes  No

**Cultural Resources Observed?**

No  Yes

**Sample Location:**

NAD_83 UTM Zone 11 North

**EASTING:** 426246.81

**NORTHING:** 406816.43

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  NO

2. Overlying water present? **YES**  NO

3. Overlying water excessively turbid? **YES**  NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  NO

5. Desired penetration depth (4 to 6 inches) achieved? **YES**  NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  NO

7. Sample is: Accepted  Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  Accepted  Rejected

**pH of Sediment in Sampler:** NR  su

**Description:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(&lt;1/16 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

Debris (twigs/leaves):

Other:

**Samples Collected Using**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Van Veen</th>
<th>Eckman</th>
</tr>
</thead>
</table>

**Sheen Present:**

Yes  No

**Sediment in Grab:**

Homogenized Sample: 11/4 - 0586

**Time:** 10:54

**Photo Numbers’:**

(see Photo Log for descriptions)

**Sediment (SE) Sample ID:**

Time: ___________

# Containers: ___________

Volume: ___________

% ___________

**Duplicate SE Sample ID:**

Time: ___________

# Containers: ___________

Volume: ___________

% ___________

**Split SE Samples (EPA/NPS/CCT):**

Time: ___________

# Containers: ___________

Volume: ___________

% ___________

**Pore Water (PW) Sample ID:**

Time: ___________

# Containers: ___________

Volume: ___________

% ___________

**Sample Lead Initials:**

Date: 10/14/13

**Field Supervisor Initials:**

Date: 10/15/13

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

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<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3B-R1</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 82.7</td>
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<tr>
<td>Drop # 1 2 3 Cast Time 10:57</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) No</td>
<td>Cultural Resources Observed? No</td>
</tr>
</tbody>
</table>

Sample Location: 426248.59 (NAD_83 UTM Zone_11 North)
EASTING: 540683.42 NORTING: 540683.42

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES
2. Overlying water present? YES
3. Overlying water excessively turbid? YES
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES
5. Desired penetration depth (4 to 6 inches) achieved? NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES
7. Sample is: Accepted

Porewater
Cumulative Percent of Porewater Syringe filled: ___%

pH of Sediment in Sampler: NR

Sediment Characteristics
Type: % Silt (<1/16 mm) | Color: Munsell Color Chart #:
% Sand (1/16 - 2 mm) | Description:__
% Gravel | Redox Boundary: Present? Yes
% Cobble | If present -- Depth Below: Sediment Surface (inches):
% Silica Glass: | Other: None

Amphipods: Tubers: Macrophytes:
Debris (twigs/leaves): Other: Other:

Sample Collected Using
| Stratified sediment: Yes No | Sheen Present: Yes No |
| Van Veen | Eckman | Sediment in Grab: |
| Po Nagar | Shovel | Homogenized Sample: |
| Other: | Time: |

Sediment (SE) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %

Duplicate SE Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %

Split SE Samples (EPA/NPS/CCT): __________ Time: __________ # Containers: __________ Volume: __________ %

Pore Water (PW) Sample ID: __________ Time: __________ # Containers: __________ Volume: __________ %

Sample Lead Initials: [Signature] Date: 10/14/13 Field Supervisor Initials: [Signature] Date: 19/15/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>20.3'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>11:01</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>E26 27 76 (NAD_83 UTM Zone 11 North)</td>
<td>NORTING:</td>
<td>520653163</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>NR su</td>
<td></td>
<td></td>
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</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (1/2 mm)</th>
<th>% Sand (1/10 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Munsell Color Chart #:</td>
<td>Description:</td>
<td>Redox Boundary:</td>
<td>If present Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td></td>
<td></td>
<td>Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

| Debris (twigs/leaves): | | |
|------------------------|------------------|
| Stratified sediment: | Yes No |
| Sheen Present: | Yes No |

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>Homogenized Sample:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers’**

<table>
<thead>
<tr>
<th>(see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment (SE) Sample ID:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: [Signature] Date: 10/14/13
Field Supervisor Initials: [Signature] Date: 10/15/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3B-R1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 77.9'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time: 11 08</td>
<td>Sampler Penetration (inches): 10''</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: 426 287.2 (NAD 83 UTM Zone 11 North)</td>
<td>NORTHING: 5406846.93</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe Filled: __% Accepted Rejected
pH of Sediment in Sampler: NR su Description: ___________

Sediment Characteristics
Type: % Silt (1/16 mm) Color: Munsell Color Chart #: Description: ___________
% Sand (1/16 - 2 mm) Redox Boundary: Present? Yes No
% Gravel ___________________ If present -- Depth Below Sediment Surface (inches): ___________
% Cobbles ___________________ Odor: None Hydrogen sulfide
% Silica Glass: ___________

Amphipods:
Debris (twigs/leaves): ___________
Tubes: ___________
Other: ___________
Macrophytes: ___________

Sample Collected Using
Stratified sediment: Yes No
Van Veen Eckman
Sheen Present: Yes No
Ponar Shovel
Sediment in Grab: 114-0389 Time: 1113
Homogenized Sample: 114-0389 Time: ___________
Other: 114-0389 Time: 1117

Sediment SE Sample ID: ___________ Time: ___________ # Containers: ___________ Volume: ___________ %
Duplicate SE Sample ID: ___________ Time: ___________ # Containers: ___________ Volume: ___________ %
Split SE Samples (EPA/NPS/CCT): ___________ Time: ___________ # Containers: ___________ Volume: ___________ %
Pore Water (PW) Sample ID: ___________ Time: ___________ # Containers: ___________ Volume: ___________ %

Sample Lead Initials: ___________ Date: 10/14/13 Field Supervisor Initials: ___________ Date: 10/15/13

Sample ID Format:
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Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

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<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>3B-R1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>21.3'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>11:27</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING:</td>
<td>526293.09</td>
<td>NORTING:</td>
<td>5406848.05</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: _____%  Accepted Rejected
PH of Sediment in Sampler: NR su Description: ________

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Present? Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Boundary: If present Depth Below</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves):
Macrophytes: Tubes: Other:

Sample Collected Using
Van Veen Eckman Ponor Shovel
Sediment in Grab: Homogenized Sample: Other:
Time: Time: Time:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: K Date: 01/14/13 Field Supervisor Initials: OH Date: 01/15/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>114-0378</td>
<td>0950</td>
<td>STA 3B-R1 ID</td>
<td>JR</td>
<td>North</td>
<td>UPRIVER north from SWA 3B-R1</td>
<td>JR</td>
<td>North</td>
</tr>
<tr>
<td>114-0381</td>
<td>0951</td>
<td>Fast shore from 3B-R1</td>
<td>JR</td>
<td>EAST</td>
<td>WEST shore from SWA 3B-R1</td>
<td>JR</td>
<td>WEST</td>
</tr>
<tr>
<td>114-0383</td>
<td>0932</td>
<td>South 3B-R1</td>
<td>JR</td>
<td>South</td>
<td>Rejected grab #1 3B-R1</td>
<td>JR</td>
<td>South</td>
</tr>
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<td>114-0385</td>
<td>1034</td>
<td>Rejected grab #3 3B-R1</td>
<td>JR</td>
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<td>Rejected grab #5</td>
<td>JR</td>
<td>Rejected</td>
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<td>114-0386</td>
<td>1054</td>
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<td>JR</td>
<td>Rejected</td>
<td>Rejected grab</td>
<td>JR</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

**Project:** 36310189  
**Station Identifier:** 3B-R1  
**Vessel:** MAZAMA  

**Field Supervisor Initials:**  
**Date:** 10/15/13

**Sample Lead Initials:**  
**Date:** 10/14/13
### Photo Log
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

- **Project:** 36310189
- **Date:** 10/14/13
- **Station Identifier:** 3B-R1
- **Vessel:** Mazama
- **Camera Serial #:** TA-2 pentax

<table>
<thead>
<tr>
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<td>Photographer: JF</td>
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<tr>
<td>Description:</td>
<td>rejected grab</td>
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</table>

<table>
<thead>
<tr>
<th>Photo ID: 114-0389</th>
<th>Time: 1117</th>
</tr>
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<tbody>
<tr>
<td>Photographer: JF</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>scoop of rejected material, grab #8</td>
</tr>
</tbody>
</table>

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<th>Photo ID:</th>
<th>Time:</th>
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<td>Photographer:</td>
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<td>Photo Orientation:</td>
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<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

**Field Supervisor Initials:** Date: 10/15/13
**Sample Lead Initials:** Date: 10/14/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/14/13
Sampling Crew: JR/BM/MS
EPA Observer: M. Endlo
Arrival Time: 1233

Station Identifier: 3B-P2
Vessel: Nazama
Vessel Crew: Trudeno/Collins/Posey
C.R. Observer: R. Depinet
Departure Time: 1564

River Stage:
Water Surface Elev. (ft): 1286.7
Water Surface Elevation Source: Coulee Dam

Weather Conditions Upon Arrival:
Temp (°F): 57
Wind (mph): Calm <5
Clouds/Precipitation: Mostly clear, sunny

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>114-0390</td>
<td>1236</td>
<td>12A-pentax</td>
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<tr>
<td>114-0392</td>
<td>1237</td>
<td>114-0391</td>
</tr>
<tr>
<td>114-0393</td>
<td>1237</td>
<td>114-0593</td>
</tr>
</tbody>
</table>

General Notes:

Field Supervisor Initials: DM Date: 10/15/13
Sample Lead Initials: JA Date: 10/14/13

C.R. - cultural resources
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>3B-R2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>82.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1239</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Sampler Penetration (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 425875.25</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

### Porewater
- **Cumulative Percent of Porewater Syringe filled:**
- **%** **Accepted** **Rejected**
- **pH of Sediment in Sampler:** **NR**
- **Description:**

### Sediment Characteristics
- **Type:**
  - % Silt: ____________ (<1/16 mm)
  - % Sand: ____________ (1/16 - 2 mm)
  - % Gravel: __________
  - % Cobbles: __________
  - % Silica Glass: __________
- **Color:**
  - Munsell Color Chart #: __________
  - Description: __________
- **Redox Boundary:**
  - Present?: **Yes** **No**
  - If present: Depth Below Sediment Surface (inches): __________
- **Odor:**
  - None:
  - Other: Hydrogen sulfide

### Amphipods:
- **Debris (twigs/leaves):**
- **Sample Collected Using:**
- **Photo Numbers:**

### Sediment (SE) Sample:
- **Sample ID:** __________
- **Time:** __________
- **# Containers:** __________
- **Volume:** __________%

### Duplicate SE Sample:
- **Sample ID:** __________
- **Time:** __________
- **# Containers:** __________
- **Volume:** __________%

### Split SE Samples (EPA/NPS/CCT):
- **Sample ID:** __________
- **Time:** __________
- **# Containers:** __________
- **Volume:** __________%

### Pore Water (PW) Sample:
- **Sample ID:** __________
- **Time:** __________
- **# Containers:** __________
- **Volume:** __________%

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** __________
**Date:** 10/14/13
**Field Supervisor Initials:** __________
**Date:** 10/18/13

---

**URS**
Project Number: 36310189

Station Identifier: 3B-R2

Anchor Point (max 3)  0  2  3

Drop # 1(2) 3

Cast Time 1243

Angle (< 5°max) Yes No

Sample Location:

EASTING: 425869.60 (NAD_83_UTM_Zone_11_North)

NORTING: 9403929.27

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater

Cumulative Percent of Porewater Syringe filled: _____% Accepted Rejected

pH of Sediment in Sampler: Description:

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods:

Debris(twigs/leaves):

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Pore Water (PW) Sample ID:

Sample Lead Initials Date: 10/14/13
Field Supervisor Initials Date: 10/15/13

URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** 3B-R2  
**Anchor Point (max 3):** 1 2 3  
**Drop #:** 1 2 3  
**Cast Time:** 12:50  
**Angle (< 5° max):** Yes  
**Sampler Penetration (inches):** unknown  
**Water Depth (feet):** 7'17  
**Sample Location:** EASTING: 425823.79  
**NORTHING:** 5403992.16  
**Cultural Resources Observed?** No  
**Water Depth (feet):**  
**Sampler Penetration (inches):**  
**Cumulative Percent of Porewater Syringe filled:**  
**pH of Sediment in Sampler:** NR  
**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Odor:** No  
**Redox Boundary:** Present? Yes  
**Boundary:** Depth Below Sediment Surface (inches):  
**Amphipods:**  
**Tubes:**  
**Macrophytes:**  
**Debris (twigs/leaves):**  
**Van Veen**

---

**Sample Collected Using:**  
**Photo Numbers:** (see Photo Log for descriptions)

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**  
**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**  
**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**  
**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**  
---

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

Sample Lead Initials:  
Date: 1/14/13  
Field Supervisor Initials:  
Date: 1/15/13

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES  
2. Overlying water present? YES  
3. Overlying water excessively turbid? YES  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES  
5. Desired penetration depth (4 to 6 inches) achieved? YES  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? NO  
7. Sample is: Accepted

---

**Porewater**

Cumulative Percent of Porewater Syringe filled:  
Description:  

---

**Sediment Characteristics**

- % Silt  
- % Sand  
- % Gravel  
- % Cobbles  
- % Silica Glass  
- Color:  
- Redox Boundary:  
- Odor:

---

**Sample Lead Initials:**  
Date: 1/14/13  
Field Supervisor Initials:  
Date: 1/15/13

---

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189  
Station Identifier: 3B-R2

Anchor Point (max 3)  1  2  3  
Water Depth (feet): 77.9

Drop # 1  2  3  Cast Time 1257

Angle (< 5°max) Yes  No

Cultural Resources Observed? No  Yes

Sample Location: 
EASTING: [NAD_83_UTM_Zone_11_North] 
NORTHING: 540395.287

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   Accepted  Rejected

2. Overlying water present?  
   Yes  No

3. Overlying water excessively turbid?  
   Yes  No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   Yes  No

5. Desired penetration depth (4 to 6 inches) achieved?  
   Yes  No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   Yes  No

7. Sample is:  
   Accepted  Rejected

Porewater

Cumulative Percent of Porewater Syringe filled: ___%  
Accepted  Rejected

pH of Sediment in Sampler: N R  su  Description:

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbleles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

Color: Munsell Color Chart #:  
Description:

Redox Boundary:  
Present?  
Yes  No

If present -- Depth Below Sediment Surface (inches):  
None

Odor:  
None  
Hydrogen sulfide

Amphipods:  
Debris (twigs/leaves):

Sample Collected Using:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

Sediment (SE) Sample ID:  
Time:  
# Containers:  
Volume:  
%

Duplicate SE Sample ID:  
Time:  
# Containers:  
Volume:  
%

Split SE Samples (EPA/NPS/CCT):  
# Containers:  
Volume:  
%

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume:  
%

Sample Lead Initials: K  
Date: 10/14/13  
Field Supervisor Initials: AD  
Date: 10/15/13  

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 3B-R2
Anchor Point (max 3): 1 2 3
Drop # 1 2 3 Cast Time 13:05
Angle (< 5°max) Yes No
Sampler Penetration (inches): 7
Cultural Resources Observed? No Yes
Sample Location: EASTING: 483841.20
Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?  YES NO
2. Overlying water present?  YES NO
3. Overlying water excessively turbid?  YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  YES NO
5. Desired penetration depth (4 to 6 inches) achieved?  YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  YES NO
7. Sample is: Accepted Rejected

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

### Project Number: 36310189  
Station Identifier: **3B-R2**

- Anchor Point (max 3): 1 2 3  
- Water Depth (feet): 81.2

#### Drop 
- 1 2 3  
- Cast Time: 1320

#### Angle (< 5° max)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

#### Cultural Resources Observed?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

#### Sample Location:

- **EASTING:** 425 847.95  
- **NORTHING:** 540 396 0.36

NAD_83_UTM_Zone_11_North

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES | NO

2. Overlying water present?  
   - YES | NO

3. Overlying water excessively turbid?  
   - YES | NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES | NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES | NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES | NO

7. Sample is:  
   - Accepted | Rejected

#### Porewater

- Cumulative Percent of Porewater Syringe filled: ___%  
- Accepted | Rejected

- pH of Sediment in Sampler:  
  - Accepted | Rejected

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Cobbles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color: Munsell Color Chart #:</th>
<th>Description</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None</th>
<th>Other:</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris(twigs/leaves):</th>
<th>Tubes:</th>
<th>Other:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collected Using**

- Stratified sediment: Yes | No
- Sheen Present: Yes | No

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Photo Numbers:**

- Sediment in Grab: 144 906  
- Homogenized Sample: 18 23

**Sample Lead Initials:**  
- Sample ID:  
  - Date: 10/14/13  
  - Field Supervisor Initials:  
    - Date: 10/15/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 3B-R2

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1337</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:** (NAD_83 UTM_Zone_11_North)  
EASTING: 425849.50  
NORTHING: 5403960.67

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No
2. Overlying water present?  
   - Yes  
   - No
3. Overlying water excessively turbid?  
   - Yes  
   - No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No
7. Sample is:  
   - Accepted  
   - Rejected

### Porewater
**Cumulative Percent of Porewater Syringe filled:** 0 %  
**Description:**

**pH of Sediment in Sampler:**

### Sediment Characteristics
**Type:**  
- % Silt 40 (<1/16 mm)  
- % Sand 60 (1/16 - 2 mm)  
- % Gravel  
- % Cobbles  
- % Silica Glass  

**Color:** Munsell Color Chart:  
- Description:

**Redox Boundary:**  
- Present? Yes  
- No
- If present -- Depth Below Sediment Surface (inches):

**Odor:**  
- None
- Hydrogen sulfide

### Amphipods:

### Debris (twigs/leaves):

### Sample Collected Using:
- Sediment in Grab: 114-0.402  
- Time: 1341
- Homogenized Sample: 114-0.503  
- Time: 1342

### Sediment (SE) Sample ID: S2-82-B2  
**Time:** 1425  
**# Containers:** 4  
**Volume:** 180 %

### Duplicate SE Sample ID:  
**Time:**  
**# Containers:**  
**Volume:**

### Split SE Samples (EPA/NPS/CCT):  
**Time:**  
**# Containers:**  
**Volume:**

### Pore Water (PW) Sample ID:  
**Time:**  
**# Containers:**  
**Volume:**

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:**  
**Date:** 10/14/13  
**Field Supervisor Initials:**  
**Date:** 10/15/13

---

**URS**
### Photo Log
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>114-0391</td>
<td>1237</td>
<td>JR</td>
<td>East</td>
<td>looking towards the E. shore, STA 3B-R2</td>
</tr>
<tr>
<td>114-0392</td>
<td>1237</td>
<td>JR</td>
<td>West</td>
<td>looking west from STA 3B-R2</td>
</tr>
<tr>
<td>114-0393</td>
<td>1237</td>
<td>JR</td>
<td>South</td>
<td>downriver from STA 3B-R2</td>
</tr>
<tr>
<td>114-0394</td>
<td>1237</td>
<td>JR</td>
<td>North</td>
<td>looking upriver from 3B-R2</td>
</tr>
<tr>
<td>114-0395</td>
<td>1241</td>
<td>JR</td>
<td></td>
<td>grab #1</td>
</tr>
<tr>
<td>114-0396</td>
<td>1246</td>
<td>JR</td>
<td></td>
<td>reject</td>
</tr>
<tr>
<td>0114-0397</td>
<td>1253</td>
<td>JR</td>
<td></td>
<td>grab #2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>reject</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature]
Date: 10/15/13

Sample Lead Initials: [Signature]
Date: 10/14/13

Vessel: Mazama
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>114-0398</td>
<td>1300</td>
<td></td>
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<tr>
<td>114-0399</td>
<td>1311</td>
<td>JR</td>
<td></td>
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</tr>
<tr>
<td>114-0401</td>
<td>1323</td>
<td>JR</td>
<td></td>
<td>#6 scoop</td>
</tr>
<tr>
<td>114-0402</td>
<td>1341</td>
<td>JR</td>
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<td>#7 scoop</td>
</tr>
<tr>
<td>114-0403</td>
<td>1342</td>
<td>JR</td>
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</table>

Field Supervisor Initials: [Signature]
Date: 10/15/13

Sample Lead Initials: [Signature]
Date: 10/14/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 3-c1
Date: 10/15/13
Vessel: Mazama
Sampling Crew: M BN/MS
Vessel Crew: Taylor/Bliss/Posy
EPA Observer: An Endo
C.R. Observer: R. Depuyet
Arrival Time: 1400
Departure Time:

River Stage:
Water Surface Elev. (ft): 1275.6
Water Surface Elevation Source: Celilo Dam

River Mile:
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes
Was Vegetation Removed: Yes

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see photo log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0445</td>
<td>1406</td>
<td>TA-2 pentax</td>
<td>1406</td>
</tr>
<tr>
<td>115-0447</td>
<td>1407</td>
<td></td>
<td>1407</td>
</tr>
</tbody>
</table>

General Notes:

C.R. - cultural resources
Field Supervisor Initials: SK Date: 10/15/13
Sample Lead Initials: DK Date: 10/15/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 3-C1

**Anchor Point (max 3)**  
- Drop: 1 2 3  
- Cast Time: 14:07  
- Sampler Penetration (inches): 8

**Angle (< 5° max) (Yes/No)**  
- Yes  
- No

**Sample Location:**  
- Sampled at: 43°43'3.27"NAD_83_UTM_Zone_11_North  
- Water Depth (feet): 5.5

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted
   - Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>NR su</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:** None  
**Debris (twigs/leaves):**  
**Tubes:**  
**Other:**  
**Macrophytes:** Hydrogen sulfide

**Stratified sediment:** Yes  
**Sheen Present:** Yes

**Sample Collected Using:**
- Van Veen
- Eckman
- Ponor
- Shovel

**Photo Numbers 's**  
(see Photo Log for descriptions)
- Sediment in Grab: 115-0499  
- Time: 14:07
- Homogenized Sample:  
- Time:  
- Other:  
- Time:

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:** %

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:** %

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:** %

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:** %

**Sample Lead Initials:**  
**Date:** 10/15/13  
**Field Supervisor Initials:**  
**Date:** 10/15/13

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>3 - C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 431411.37</td>
<td>NORTHING: 8407940.87</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td>Rejected</td>
<td></td>
</tr>
</tbody>
</table>

### Porewater

- Cumulative Percent of Porewater Syringe filled: %
- Accepted
- Rejected

- pH of Sediment in Sampler: 7.7

### Sediment Characteristics

- Type: % Silt: 2 (<1/16 mm)
- % Sand: 98 (1/16 - 2 mm)
- % Gravel
- % Cobbles
- % Silica Glass:

- Color: Munsell Color Chart #: Description: *michlet gray/white/black*

- Redox Boundary: Present? Yes No

- Odor: None Hydrogen sulfide

### Amphipods

- Debris (twigs/leaves):
- Tubes:
- Macrophytes:

### Sample Collected Using

- Van Veen
- Eckman
- Ponor
- Shovel

### Sediment (SE) Sample ID:

- SE-3-C1
- Time: 14:46
- # Containers: 4/1
- Volume: 100/80 %

### Duplicate SE Sample ID:

- Time: 
- # Containers: 
- Volume: %

### Split SE Samples (EPA/NPS/CCT):

- Time: 
- # Containers: 
- Volume: %

### Pore Water (PW) Sample ID:

- Time: 
- # Containers: 
- Volume: %

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0444</td>
<td>14:06</td>
<td>M. Collings</td>
<td></td>
<td>Site I.D.</td>
</tr>
<tr>
<td>115-0445</td>
<td>14:06</td>
<td>M. Collings</td>
<td>North</td>
<td>Looking upstream</td>
</tr>
<tr>
<td>115-0446</td>
<td>14:06</td>
<td>M. Collings</td>
<td>East</td>
<td>Looking at left bank</td>
</tr>
<tr>
<td>115-0447</td>
<td>14:07</td>
<td>M. Collings</td>
<td>South</td>
<td>Looking downstream</td>
</tr>
<tr>
<td>115-0448</td>
<td>14:07</td>
<td>M. Collings</td>
<td>West</td>
<td>Looking at right bank</td>
</tr>
<tr>
<td>115-0449</td>
<td>14:07</td>
<td>M. Collings</td>
<td>Grab #1</td>
<td>Resected sample, 50% winnowing, sig. veg.</td>
</tr>
<tr>
<td>115-0450</td>
<td>14:06</td>
<td>M. Collings</td>
<td>Grab #2</td>
<td>Successful sample, 12' penetration</td>
</tr>
<tr>
<td>115-0451</td>
<td>14:13</td>
<td>M. Collings</td>
<td>Sediment closeup</td>
<td></td>
</tr>
<tr>
<td>115-0452</td>
<td>14:44</td>
<td>M. Collings</td>
<td></td>
<td>Homogenized sample</td>
</tr>
</tbody>
</table>
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/15/13
Sampling Crew: JR/BN/NS
EPA Observer: Endo
Arrival Time: 1042
Station Identifier: 3-C2
Vessel: Mazama
Vessel Crew: Trudell/Collins/Posey
C.R. Observer: R. Dehouyet
Departure Time: 1339

River Stage:
Water Surface Elev. (ft): 1285.6
Water Surface Elevation Source: Coulee Dam

Weather Conditions Upon Arrival
Temp (°F): 54
Wind (mph): calm
Clouds/Precipitation: mostly clear

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 124
River Current: (Swift) (Eddy) (Calm) (Ripple)
Boat Traffic: support boats

Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes (No)
Was Vegetation Removed: Yes (No)

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0432</td>
<td>1246</td>
<td>TA-2 pretax</td>
</tr>
<tr>
<td>115-0433</td>
<td>1246</td>
<td>TA-2 pretax</td>
</tr>
</tbody>
</table>

General Notes:
complete 9 attempts, No accepted grab samples.

C.R. - cultural resources
Field Supervisor Initials: QPJ Date: 10/15/13
Sample Lead Initials: QPJ Date: 10/15/13
### Project Number: **36310189**

**Station Identifier:** 3-C2

**Anchor Point (max 3):** 1 2 3

**Drop #:** 1 2 3  
**Cast Time:** 1244

**Sampler Penetration (inches):** empty

**Angle (<5°max):** Yes No

**Cultural Resources Observed?** No Yes

**Sample Location:**

- **EASTING:** 431983.20
- **NORTHING:** S467757.77

**Sample Acceptance Criteria:**

1. **Sampler overfilled or sediment pressed against top of sampler?** YES NO
2. **Overlying water present?** YES NO
3. **Overlying water excessively turbid?** YES NO
4. **Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?** YES NO
5. **Desired penetration depth (4 to 6 inches) achieved?** YES NO
6. **Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?** YES NO
7. **Sample is:** Accepted Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**
  - Accepted
  - Rejected

**pH of Sediment in Sampler:** NR

**Description:**

**Sediment Characteristics**

- **Type:** % Silt (1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % silica Glass:
  - Color: Munsell Color Chart #:
  - Description:

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

**Amphipods:**

- **Debris(twigs/leaves):**

**Sample Collected Using**

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

- **Homogenized Sample:**

**Photo Numbers:**

- **Sediment in Grab:** 115-0935
- **Time:** 12:46

- **Sediment (SE) Sample ID:** ______ Time: ______ 
  - # Containers: ______ Volume: ______ %

- **Duplicate SE Sample ID:**
  - Time: ______
  - # Containers: ______ Volume: ______ %

- **Split SE Samples (EPA/NPS/CCT):**
  - Time: ______
  - # Containers: ______ Volume: ______ %

- **Pore Water (PW) Sample ID:**
  - Time: ______
  - # Containers: ______ Volume: ______ %

**Sample Lead Initials:** __________ Date: 10/15/13

**Field Supervisor Initials:** __________ Date: 10/15/13
### Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
### 2013 Phase 2 Sediment Study

#### Project Number: 36310189

#### Station Identifier: 3-C2

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>71.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>1252</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Sample Location:

| EASTING: 432033.55 | NORTHING: 5407767.19 |

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (1/16 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris(wigs/leaves):</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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#### Sample Collected Using

<table>
<thead>
<tr>
<th>Sample</th>
<th>Collecting Method</th>
</tr>
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<tbody>
<tr>
<td>Sediment (SE)</td>
<td>Van Veen</td>
</tr>
<tr>
<td>Duplicate SE</td>
<td>Eckman</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT)</td>
<td>Ponar</td>
</tr>
<tr>
<td>Pore Water (PW)</td>
<td>Shovel</td>
</tr>
</tbody>
</table>

#### Photo Numbers’s

<table>
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<tr>
<th>(see Photo Log for descriptions)</th>
<th>Sediment in Grab: 118-C436</th>
<th>Time: 1254</th>
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<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

#### Sample Lead Initials: **J2**

#### Date: 10/15/13

#### Field Supervisor Initials: **CX**

#### Date: 09/15/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

**Station Identifier:** 3-C2

**Anchor Point (max 3):** 1 2 3

**Water Depth (feet):** 6.17'

**Drop #:** 1 2 3

**Cast Time:** 12:56

**Sampler Penetration (inches):**

**Sample Location:**
- **EASTING:** 431997.41 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 541780.21

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

### Porewater
- **Cumulative Percent of Porewater Syringe filled:** ___
- **pH of Sediment in Sampler:** _
- **Description:** —

### Sediment Characteristics
- **Type:**
  - % Silt: ___
  - % Sand: ___
  - % Gravel: ___
  - % Cobbles: ___
  - % Silica Glass: ___

- **Color:** Munsell Color Chart #: __
- **Description:** —

- **Redox Boundary:**
  - Present?: _
  - If present -- Depth Below Sediment Surface (inches): ___

- **Odor:**
  - None: ___
  - Hydrogen sulfide: ___
  - Other: ___

### Amphipods:
- Yes: ___
- No: ___

### Debris (twigs/leaves):
- Yes: ___
- No: ___

### Sample Collected Using
- Van Veen
- Eckman
- Ponar
- Shovel

### Sediment in Grab:
- **Sediment in Grab:** 115-0437
- **Time:** 12:58

### Homogenized Sample:
- **Time:** —

### Other:
- **Time:** —

### Sediment (SE) Sample ID:
- **Time:** —
- **# Containers:** —
- **Volume:** —
- **%:** —

### Duplicate SE Sample ID:
- **Time:** —
- **# Containers:** —
- **Volume:** —
- **%:** —

### Split SE Samples (EPA/NPS/CCT):
- **Time:** —
- **# Containers:** —
- **Volume:** —
- **%:** —

### Pore Water (PW) Sample ID:
- **Time:** —
- **# Containers:** —
- **Volume:** —
- **%:** —

### Sample Lead Initials:
- **Date:** 10/1/13

### Field Supervisor Initials:
- **Date:** 10/1/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Station Identifier:</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Water Depth (feet):** 70.6

**Sampler Penetration (inches):** empty

**Sample Location:** 
- **EASTING:** 431957.86 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 5407758.57

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted

### Porewater

- **Cumulative Percent of Porewater Syringe filled:**
- **pH of Sediment in Sampler:**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present?</td>
</tr>
<tr>
<td></td>
<td>If present -- Depth Below</td>
</tr>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>% Cobbles</th>
<th>Odor:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

| Debris (twigs/leaves): |

### Tubes:

| Other: |

### Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Eckman</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Ponor</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
<tr>
<td># Containers:</td>
</tr>
<tr>
<td>Volume: %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
<tr>
<td># Containers:</td>
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<td>Volume: %</td>
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</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
</tr>
</thead>
<tbody>
<tr>
<td># Containers:</td>
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<tr>
<td>Volume: %</td>
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<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
<tr>
<td># Containers:</td>
</tr>
<tr>
<td>Volume: %</td>
</tr>
</tbody>
</table>

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** [Signature]

**Date:** 10/15/13

**Field Supervisor Initials:** [Signature]

**Date:** 10/15/13

---

**URS**
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

#### Project Number:
36310189

#### Station Identifier:
3-C2

#### Anchor Point (max 3):
1 2 3

#### Water Depth (feet):
72.3

#### Drop #:
1 2 3

#### Cast Time:
1304

#### Sampler Penetration (inches):
Cobble

#### Angle (<5°max):
No

#### Cultural Resources Observed?
No

#### Sample Location:

**EASTING:** 431985.57  
**NORTHING:** 540772.27

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:
   - Accepted
   - Rejected

#### Porewater

- Cumulative Percent of Porewater Syringe filled:  
- Accepted
- Rejected

- pH of Sediment in Sampler:

#### Sediment Characteristics

- Type: % Silt  
- % Sand  
- % Gravel  
- % Cobbles  
- % Silica Glass:

- Color: Munsell Color Chart #:  
- Description:

- Redox Boundary:  
- Present?  
- Yes  
- No  
- If present -- Depth Below Sediment Surface (inches):

- Odor: None  
- Hydrogen sulfide  
- Other:

#### Amphipods:

#### Debris (twigs/leaves):

#### Sample Collected Using:

- Van Veen
- Eckman
- Ponor
- Shovel

- Sediment in Grab:

- Homogenized Sample:

- Other:

#### Photo Numbers:

(see Photo Log for descriptions)

- Time:
- 1367

#### Sediment (SE) Sample ID:

- Time:
- # Containers:
- Volume:

#### Duplicate SE Sample ID:

- Time:
- # Containers:
- Volume:

#### Split SE Samples (EPA/NPS/CCT):

- Time:
- # Containers:
- Volume:

#### Pore Water (PW) Sample ID:

- Time:
- # Containers:
- Volume:

### Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

Sample Lead Initials:  
Date: 10/15/13  
Field Supervisor Initials:  
Date: 10/15/13

---

**URS**
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

**Project Number:** 36310189

**Station Identifier:** 3-C2

**Anchor Point (max 3):**

1. 
2. 
3.

**Drop #:**

1. 
2. 
3. 

**Cast Time:** 1309

**Water Depth (feet):** 75.5'

**Sample Location:**

**EASTING:** 43197714 (NAD_83_UTM_Zone_11_North)

**NORTHING:** 5467741.22

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? 
   - YES 
   - NO

2. Overlying water present? 
   - YES 
   - NO

3. Overlying water excessively turbid? 
   - YES 
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? 
   - YES 
   - NO

5. Desired penetration depth (4 to 6 inches) achieved? 
   - YES 
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? 
   - YES 
   - NO

7. Sample is:
   - Accepted
   - Rejected

**Porewater**

**Cumulative Percent of Porewater Syringe filled:** ___%

**pH of Sediment in Sampler:** NR

**Description:**

**Cumulative Percent of Porewater Syringe filled:**

**Accepted**

**Rejected**

**Sediment Characteristics**

**Color:**

- Munsell Color Chart #: 
- Description:

**Type:**

- % Silt: _______(<1/16 mm)
- % Sand: _______(1/16 - 2 mm)
- % Gravel: _______
- % Cobbles: _______
- % Silica Glass: _______

**Redox Boundary:**

- Present? Yes No
- If present -- Depth Below Sediment Surface (inches):

**Odor:**

- None
- Hydrogen sulfide
- Other:

**Amphipods:**

- Debris (twigs/leaves):
- Tubes:
- Macrophytes:

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Collected Using**

- Van Veen
- Eckman
- Ponar
- Shovel

**Photo Numbers:**

- Sediment in Grab: 15-0946 Time: 131
- Homogenized Sample: Time:
- Other: Time:

**Sediment (SE) Sample ID:**

- Time: 
- # Containers: 
- Volume: __% 

**Duplicate SE Sample ID:**

- Time: 
- # Containers: 
- Volume: __%

**Split SE Samples (EPA/NPS/CCT):**

- Time: 
- # Containers: 
- Volume: __%

**Pore Water (PW) Sample ID:**

- Time: 
- # Containers: 
- Volume: __%

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** 

**Date:** 10/15/13

**Field Supervisor Initials:** 

**Date:** 10/15/13

**URS**
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 68.8</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 13:13</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td></td>
</tr>
<tr>
<td>Sample Location: EASTING: 431969.02 NORTHING: 440778.93</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled: **%**
- pH of Sediment in Sampler: **NR** **su**
- Description: **Accepted** **Rejected**

### Sediment Characteristics

- Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles % Silica Glass
- Color: Munsell Color Chart #: Description:
- Redox Boundary: Present? **Yes** **No**
- Odor: None Hydrogen sulfide

### Amphipods:
- Debris(twigs/leaves):
- Tubes:
- Macrophytes:

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td>Sediment in Grab: 115-4141 Time: 13:16</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Other:</td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID:

- Time: 115-4141
- # Containers: 4
- Volume: 4 %

### Duplicate SE Sample ID:

- Time: 115-4141
- # Containers: 4
- Volume: 4 %

### Split SE Samples (EPA/NPS/CCT):

- # Containers: 4
- Volume: 4 %

### Pore Water (PW) Sample ID:

- Time: 115-4141
- # Containers: 4
- Volume: 4 %

Sample Lead Initials: 10/15/13
Field Supervisor Initials: 10/15/13

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 3-C2

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1319
Angle (< 5° max) Yes No

Sample Location:
EASTING: 481991.49
NORTHING: 5487778.46

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: MR su

Sediment Characteristics
Type: % Silt (%<1/16 mm) Color: Munsell Color Chart #:
% Sand (%1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Amphipods: Tubes: Macrophytes:
Debris (twigs/leaves): Other:
Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers’s
(see Photo Log for descriptions)

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: GR Date: 10/15/13 Field Supervisor Initials: SX Date: 10/15/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

**Project Number:** 36310189

**Station Identifier:** 3-C2

**Anchor Point (max 3):**
- 1
- 2
- 3

**Drop #:**
- 1
- 2
- 3

**Cast Time:** 13:22

**Water Depth (feet):** 75.8

**Sampler Penetration (inches):**
- EMPTY

**Sample Location:**
- EASTING: 432009,68 (NAD_83_UTM_Zone_11_North)
- NORTING: 5407736,61

### Sample Acceptance Criteria:
- 1. Sampler overfilled or sediment pressed against top of sampler? **YES**
- 2. Overlying water present? **YES**
- 3. Overlying water excessively turbid? **YES**
- 4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
- 5. Desired penetration depth (4 to 6 inches) achieved? **YES**
- 6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
- 7. Sample is: **Accepted**

### Porewater
- **Cumulative Percent of Porewater Syringe filled:** 
- **pH of Sediment in Sampler:** 

### Sediment Characteristics
- **Type:**
  - % Silt: 
  - % Sand: 
  - % Gravel: 
  - % Cobbles: 
  - % Silica Glass: 
  - Color: Munsell Color Chart #: 
  - Description:

- **Redox Boundary:**
  - Present? **Yes**
  - If present -- Depth Below Sediment Surface (inches):

### Amphipods:
- Debris (twigs/leaves):
- Other:

### Tubes:
- Other:

### Macrophytes:
- Stratified sediment: **Yes**
- Sheen Present: **Yes**

### Sample Collected Using
- **Van Veen**: 
- **Eckman**: 
- **Ponar**: 
- **Shovel**: 

- **Photo Numbers 's**
  - Sediment in Grab: 
  - Homogenized Sample: 

### Sediment (SE) Sample ID:
- **Time:** 
- **# Containers:** 
- **Volume:** 

### Duplicate SE Sample ID:
- **Time:** 
- **# Containers:** 
- **Volume:** 

### Split SE Samples (EPA/NPS/CCT):
- **Time:** 
- **# Containers:** 
- **Volume:** 

### Pore Water (PW) Sample ID:
- **Time:** 
- **# Containers:** 
- **Volume:** 

### Sample Lead lnitial(s):
- **Date:** 10/15/13

### Field Supervisor Initials:
- **Date:** 10/15/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

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**URS**
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0430</td>
<td>12:46</td>
<td>MC</td>
<td>Site ID</td>
<td>Looking Upstream</td>
</tr>
<tr>
<td>115-0431</td>
<td>12:46</td>
<td>MC</td>
<td>North</td>
<td>Looking upstream</td>
</tr>
<tr>
<td>115-0432</td>
<td>12:46</td>
<td>MC</td>
<td>East</td>
<td>Looking at left bank</td>
</tr>
<tr>
<td>115-0433</td>
<td>12:46</td>
<td>MC</td>
<td>South</td>
<td>Looking downstream</td>
</tr>
<tr>
<td>115-0434</td>
<td>12:46</td>
<td>MC</td>
<td>West</td>
<td>Looking at right bank</td>
</tr>
<tr>
<td>115-0435</td>
<td>12:46</td>
<td>MC</td>
<td>Grab #1</td>
<td>Resected sample</td>
</tr>
<tr>
<td>115-0436</td>
<td>12:54</td>
<td>MC</td>
<td>Grab #2</td>
<td>Resected sample</td>
</tr>
<tr>
<td>115-0437</td>
<td>12:58</td>
<td>MC</td>
<td>Grab #3</td>
<td>Resected sample</td>
</tr>
</tbody>
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Field Supervisor Initials: [Signature]  Date: 10/1/13
Sample Lead Initials: [Signature]  Date: 10/15/13
### Project Information
- **Project:** 36310189
- **Date:** 10-15-2013
- **Station Identifier:** B-2
- **Vessel:** MAZAMA
- **Camera Serial #:** TA-2

### Photo Log

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0432</td>
<td>13:02</td>
<td>MC 038</td>
<td>GRAB #4</td>
<td>REJECTED SAMPLE</td>
<td>115-0439</td>
<td>13:07</td>
<td>MC</td>
<td>GRAB #5</td>
<td>SMALL COBBLE</td>
</tr>
<tr>
<td>115-0440</td>
<td>13:11</td>
<td>MC 038</td>
<td>GRAB #6</td>
<td>REJECTED SAMPLE</td>
<td>115-0441</td>
<td>13:16</td>
<td>MC</td>
<td>GRAB #7</td>
<td>SMALL COBBLE</td>
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<td>115-0442</td>
<td>13:19</td>
<td>MC 038</td>
<td>GRAB #8</td>
<td>REJECTED SAMPLE</td>
<td>115-0443</td>
<td>13:25</td>
<td>MC</td>
<td>GRAB #9</td>
<td>SMALL COBBLE</td>
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</table>

### Additional Notes
- Photographer: [Signature]
- Photo Orientation: [Signature]
- Description: [Signature]

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**Field Supervisor Initials:** [Signature]  
**Sample Lead Initials:** [Signature]  
**Date:** 10/15/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10/15/13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>T. R. Jones</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>M. Endo</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>0851</td>
</tr>
<tr>
<td>Vessel:</td>
<td>Mazama</td>
</tr>
<tr>
<td>Vessel Crew:</td>
<td>Trueley / Collins / Pasky</td>
</tr>
<tr>
<td>C.R. Observer:</td>
<td>R. DiFazio</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>10:04</td>
</tr>
<tr>
<td>River Stage:</td>
<td>Water Surface Elevation Source: Coulee Dam</td>
</tr>
<tr>
<td>Water Surface Elevation (ft):</td>
<td>1285.7</td>
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<tr>
<td>Weather Conditions Upon Arrival:</td>
<td></td>
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<tr>
<td>Temp (°F):</td>
<td>42</td>
</tr>
<tr>
<td>Wind (mph):</td>
<td>Calm</td>
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<tr>
<td>Clouds/Precipitation:</td>
<td>Dry</td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
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<tr>
<td>Boat Position:</td>
<td>(Powered)</td>
</tr>
<tr>
<td>River Mile:</td>
<td>723</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>Yes</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td></td>
</tr>
<tr>
<td>(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location Photo IDs: (see Photo Log for descriptions)</th>
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<tbody>
<tr>
<td>Camera ID: T.A. pentax</td>
</tr>
<tr>
<td>Photo ID: 115-c464 Time: 0842</td>
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<tr>
<td>Photo ID: 115-c465 Time: 0842</td>
</tr>
<tr>
<td>Photo ID: 115-c466 Time: 0842</td>
</tr>
<tr>
<td>Photo ID: 115-c467 Time: 0843</td>
</tr>
</tbody>
</table>

General Notes:

C.R. - cultural resources

Field Supervisor Initials: D. H. Date: 10/15/13
Sample Lead Initials: D. L. Date: 10/15/13
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th><strong>Project Number:</strong></th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample Location:</strong></td>
<td>easting: 430231.82  NAD_83_UTM_Zone_11_North  northing: 5406972.79</td>
</tr>
<tr>
<td><strong>Sample Acceptance Criteria:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
<tr>
<td><strong>Porewater</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative Percent of Porewater Syringe filled:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>pH of Sediment in Sampler:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sediment Characteristics</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Type:</strong></td>
<td>% Silt</td>
</tr>
<tr>
<td></td>
<td>% Sand</td>
</tr>
<tr>
<td></td>
<td>% Gravel</td>
</tr>
<tr>
<td></td>
<td>% Cobble</td>
</tr>
<tr>
<td></td>
<td>% Silica Glass</td>
</tr>
<tr>
<td><strong>Amphipods:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Debris (twigs/leaves):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Macrophytes:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sample Collected Using:</strong></td>
<td></td>
</tr>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sediment (SE) Sample ID:</strong></td>
<td></td>
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<tr>
<td><strong>Duplicate SE Sample ID:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Split SE Samples (EPA/NPS/CCT):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pore Water (PW) Sample ID:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sample ID Format:</strong></td>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  PW-1-B2: Pore Water at Station 1-B2</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** A  Date: 10/15/13  **Field Supervisor Initials:** 04  Date: 10/15/13

**URS**
**Sediment/Porewater Sampling Form**
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 3-C3

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1 2 3</td>
<td>0858</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Sample Location: EASTING:</th>
<th>Sample Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>430882.19 (NAD_83_UTM_Zone_11_North)</td>
<td>empty</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YE S NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td>(1/16 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

**Amphipods:**

- Debris (twigs/leaves):
- Other:

**Tubes:**

- Other:

**Macrophytes:**

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample ID Format:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
</tr>
<tr>
<td>SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)</td>
</tr>
<tr>
<td>PW-1-B2: Pore Water at Station 1-B2</td>
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</table>

**Photo Numbers:**

(see Photo Log for descriptions)

**Sample Lead Initials:** [A]  
**Date:** 10/15/13  
**Field Supervisor Initials:** [D]  
**Date:** 10/15/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
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<tbody>
<tr>
<td>Station Identifier:</td>
<td>3-C3</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>6 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
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</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time:</td>
<td>09:44</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>Easting (NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>Westing:</td>
<td>5406961 21</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

#### Porewater
- Cumulative Percent of Porewater Syringe filled: |
- pH of Sediment in Sampler: |

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
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#### Amphipods:

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Sheen Present:</th>
<th>Sample ID Format:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (No)</td>
<td>Yes (No)</td>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
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</tbody>
</table>

#### Photo Numbers

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</table>

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Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189

**Station Identifier:** 3-C3

**Anchor Point (max 3):**

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>09/10</td>
</tr>
</tbody>
</table>

**Water Depth (feet):** 47.6

**Sampler Penetration (inches):**

**Angle (≤ 5° max):** Yes

**Cultural Resources Observed?** No

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**

2. Overlying water present? **YES**

3. Overlying water excessively turbid? **YES**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**

5. Desired penetration depth (4 to 6 inches) achieved? **YES**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**

7. Sample is: Accepted

---

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:** NR

**Description:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Odor:**

- None
- Hydrogen sulfide
- Other:

**Amphipods:**

**Tubes:**

**Macrophytes:**

**Debris (twigs/leaves):**

**Stratified sediment:** Yes

**Sheen Present:** Yes

**Photograph Numbers (see Photo Log for descriptions):**

- Sediment in Grab: 09/08
- Homogenized Sample: 09/08
- Other:

**Sediment (SE) Sample ID:** Time: # Containers: Volume: %

**Duplicate SE Sample ID:** Time: # Containers: Volume: %

**Split SE Samples (EPA/NPS/CCT):** # Containers: Volume: %

**Pore Water (PW) Sample ID:** Time: # Containers: Volume: %

---

**Sample Lead Initials:** AC

**Date:** 09/15/13

**Field Supervisor Initials:** OA

**Date:** 10/15/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 3-C3
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 0914
Angle (< 5°max) Yes No
Sample Location: EASTING: 430225 Y (NAD_83_UTM_Zone_11_North) NORTHING: 5407010.30
Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected
pH of Sediment in Sampler: su
Description:

Sediment Characteristics
Type: % Silt (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass
Color: Munsell Color Chart #:
Description:
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris(twigs/leaves):
Tubes:
Macrophytes:

Sample Collected Using
Sediment in Grab:
Homogenized Sample:
Other:

Photo Numbers 's
(see Photo Log for descriptions)

Stratified sediment: Yes No
Sheen Present: Yes No

Van Veen
Eckman
Ponar
Shovel

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials Date: 10/15/13
Field Supervisor Initials Date: 10/15/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
### Sediment/Porewater Sampling Form
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt;5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>48.0</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>blank</td>
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<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 430 235.86 (NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td></td>
<td>NORTHING: 546 7000.52</td>
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</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Description:</th>
</tr>
</thead>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Color: Munsell Color Chart #:</th>
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<tr>
<th>Redox Boundary:</th>
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<tr>
<th>Present?</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>If present -- Depth Below Sediment Surface (inches):</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>None</th>
<th>Hydrogen sulfide</th>
<th>Other</th>
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#### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
</table>

#### Tubes:

<table>
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<th>Other</th>
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</table>

#### Macrophytes:

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<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
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</table>

<table>
<thead>
<tr>
<th>Sheen Present:</th>
<th>Yes No</th>
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#### Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ponor</th>
<th>Shovel</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
<th>11-15-0413</th>
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<table>
<thead>
<tr>
<th>Homogenized Sample:</th>
<th>Time: 08/19</th>
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</table>

#### Photo Numbers:

(see Photo Log for descriptions)

#### Sediment (SE) Sample ID: |

| Time: | # Containers: | Volume: % |

#### Duplicate SE Sample ID: |

| Time: | # Containers: | Volume: % |

#### Split SE Samples (EPA/NPS/CCT):

| Time: | # Containers: | Volume: % |

#### Pore Water (PW) Sample ID: |

| Time: | # Containers: | Volume: % |

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** ZC  
**Date:** 10/4/13  
**Field Supervisor Initials:** CM  
**Date:** 9/15/13

---

**URS**
**Sediment/Porewater Sampling Form**
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 47.1</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>Sampler Penetration (inches): Single cobble</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
</tr>
<tr>
<td>EASTING: 430221.87</td>
<td>NORTING: 5406969.06</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**
Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected
pH of Sediment in Sampler: NR su Description: ____________

**Sediment Characteristics**
Type: % Silt ____________ (<1/16 mm)
% Sand ____________ (1/16 - 2 mm)
% Gravel ____________
% Cobble ____________
% Silica Glass ____________
Color: Munsell Color Chart #: Description: ____________
Redox Boundary: Yes No
If present -- Depth Below Sediment Surface (inches): ______
Odor: None Hydrogen sulfide Other: ______

**Amphipods:**
Debris(twigs/leaves): ____________
Stratified sediment: Yes No
Sheen Present: Yes No

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sample ID Format</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
<td></td>
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<tr>
<td>Eckman</td>
<td>SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td>PW-1-B2: Pore Water at Station 1-B2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td>Other: ____________</td>
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<tr>
<td>Photo Numbers 's</td>
<td>(see Photo Log for descriptions)</td>
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<tr>
<td>0923</td>
<td>115-0414</td>
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**Sediment (SE) Sample ID:** Time: ____________ # Containers: ____________ Volume: ____________ %
**Duplicate SE Sample ID:** Time: ____________ # Containers: ____________ Volume: ____________ %
**Split SE Samples (EPA/NPS/CCT):** Time: ____________ # Containers: ____________ Volume: ____________ %
**Pore Water (PW) Sample ID:** Time: ____________ # Containers: ____________ Volume: ____________ %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: ____________ Date: 10/15/13 Field Supervisor Initials: ____________ Date: 10/15/13

URS
<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 47.8</td>
</tr>
<tr>
<td>1 2 3</td>
<td>4.78</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>Sampler Penetration (inches): empty</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: 4302 45.83 (NAD 83 UTM Zone 11 North)</td>
<td>NORTING: 5406977.66</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled:______% Accepted Rejected
pH of Sediment in Sampler: NR su Description:

Sediment Characteristics

- Type: % Silt (1/16 mm)
- % Sand (1/16 - 2 mm)
- % Gravel
- % Cobbles
- % Silica Glass

Color: Munsell Color Chart #: Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods: Yes No
Debris (twigs/leaves): Other:
Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Other:

Sample (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead lnitials A Date: 10/15/13
Field Supervisor lnitials A Date: 10/15/13

No
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 3-C3

**Anchor Point (max 3)** 1 2 3  
**Water Depth (feet):** 50.8

**Drop #** 1 2 3  
**Cast Time:** 09:23

**Angle (< 5°max)** Yes No  
**Cultural Resources Observed?** No Yes

**Sample Location:** (NAD_83_UTM_Zone_11_North)  
**EASTING:** 430221.15  
**NORTHING:** 5406972.15

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**

2. Overlying water present?  
   - **YES**  
   - **NO**

3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   - **YES**  
   - **NO**

5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**  
  - Accepted  
  - Rejected

**pH of Sediment in Sampler:** NR

**Sediment Characteristics**

- **Type:**  
  - % Silt:  
  - Color: Munsell Color Chart #:  
  - Description:

- % Sand:  
  - (1/16 - 2 mm)

- % Gravel:  
  - Redox Boundary:

- % Cobbles:  
  - Odor: None  
  - Hydrogen sulfide

- % Silica Glass:

**Amphipods:**

**Debris (twigs/leaves):**

**Tubes:**

**Other:**

**Macrophytes:**

**Stratified sediment:** Yes No

**Sheen Present:** Yes No

**Sample Collected Using**

- Van Veen
- Eckman
- Ponar
- Shovel

**Homogenized Sample:**

**Sediment in Grab:**

**Photo Numbers**'s

(see Photo Log for descriptions)

**Sediment (SE) Sample ID:**  
- **Time:**  
- **# Containers:**  
- **Volume:**

**Duplicate SE Sample ID:**  
- **Time:**  
- **# Containers:**  
- **Volume:**

**Split SE Samples (EPA/NPS/CCT):**  
- **# Containers:**  
- **Volume:**

**Pore Water (PW) Sample ID:**  
- **Time:**  
- **# Containers:**  
- **Volume:**

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** [Signature]

**Date:** 10/15/13  
**Field Supervisor Initials:** [Signature]

**Date:** 10/15/13  

**URS**
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0404</td>
<td>08:42</td>
<td>MC</td>
<td>North</td>
<td>Upstream 1/8 Site Location</td>
</tr>
<tr>
<td>115-0405</td>
<td>08:42</td>
<td>MC</td>
<td>East</td>
<td>Left Bank</td>
</tr>
<tr>
<td>115-0406</td>
<td>09:42</td>
<td>MC</td>
<td>South</td>
<td>Downstream 1/8 Site Location</td>
</tr>
<tr>
<td>115-0407</td>
<td>08:43</td>
<td>MC</td>
<td>East</td>
<td>Right Bank</td>
</tr>
<tr>
<td>115-0408</td>
<td>08:51</td>
<td>MC</td>
<td>South</td>
<td>Site Location</td>
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<td>115-0409</td>
<td>09:00</td>
<td>MC</td>
<td>North</td>
<td>Site Location</td>
</tr>
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<td>115-0410</td>
<td>09:03</td>
<td>MC</td>
<td>South</td>
<td>Site Location</td>
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<td>115-0411</td>
<td>09:08</td>
<td>MC</td>
<td>North</td>
<td>Site Location</td>
</tr>
<tr>
<td>115-0412</td>
<td>09:11</td>
<td>MC</td>
<td>South</td>
<td>Site Location</td>
</tr>
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</table>

Field Supervisor Initials: [Signature]
Date: 10/15/13

Sample Lead Initials: [Signature]
Date: 10/15/13
<table>
<thead>
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<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0412</td>
<td>09:16</td>
<td>MC</td>
<td></td>
<td>Rejected sample</td>
</tr>
<tr>
<td>115-0413</td>
<td>09:19</td>
<td>MC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>115-0414</td>
<td>09:23</td>
<td>MC</td>
<td></td>
<td>Rejected sample</td>
</tr>
<tr>
<td>115-0415</td>
<td>09:27</td>
<td>MC</td>
<td></td>
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<tr>
<td>115-0416</td>
<td>09:31</td>
<td>MC</td>
<td></td>
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</table>

Field Supervisor Initials: [Signature] Date: 10/15/13
Sample Lead Initials: [Signature] Date: 10/15/13
**Sample Location Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th><strong>Project Number:</strong></th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date:</strong></td>
<td>10/15/13</td>
</tr>
<tr>
<td><strong>Sampling Crew:</strong></td>
<td>Stop/off/185</td>
</tr>
<tr>
<td><strong>EPA Observer:</strong></td>
<td>M. Enos (c/n)</td>
</tr>
<tr>
<td><strong>Arrival Time:</strong></td>
<td>10:11</td>
</tr>
<tr>
<td><strong>River Stage:</strong></td>
<td>1286.5'</td>
</tr>
<tr>
<td><strong>Water Surface Elevation Source:</strong></td>
<td>Coulee Dam</td>
</tr>
<tr>
<td><strong>Site Information:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Boat Position:</strong></td>
<td>(Powered) (Anchored)</td>
</tr>
<tr>
<td><strong>River Mile:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Water Surface:</strong></td>
<td>(Calm) (Small Waves) (Choppy)</td>
</tr>
<tr>
<td><strong>Surface Vegetation Present:</strong></td>
<td>Yes No</td>
</tr>
<tr>
<td><strong>Was Vegetation Removed:</strong></td>
<td>Yes No</td>
</tr>
<tr>
<td><strong>Notable shore surface features:</strong></td>
<td>(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
</tr>
<tr>
<td><strong>Sample Location Photo IDs:</strong></td>
<td></td>
</tr>
<tr>
<td>(see Photo Log for descriptions)</td>
<td></td>
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<tr>
<td><strong>Photo ID:</strong></td>
<td>115-04/9 Time: 10:11</td>
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<td><strong>Photo ID:</strong></td>
<td>115-04/21 Time: 10:11</td>
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<tr>
<td><strong>Photo ID:</strong></td>
<td>115-04/22 Time: 10:11</td>
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<tr>
<td><strong>Weather Conditions Upon Arrival:</strong></td>
<td></td>
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<tr>
<td><strong>Temp (°F):</strong></td>
<td>47</td>
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<tr>
<td><strong>Wind (mph):</strong></td>
<td>slight &lt; 5</td>
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<td><strong>Clouds/Precipitation:</strong></td>
<td>foggy, some snw</td>
</tr>
<tr>
<td><strong>General Notes:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>C.R. - cultural resources</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Field Supervisor Initials:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Date:</strong></td>
<td>10/15/13</td>
</tr>
<tr>
<td><strong>Sample Lead Initials:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Date:</strong></td>
<td>10/15/13</td>
</tr>
</tbody>
</table>
**Sediment/Porewater Sampling Form**

Upper Columbia River RI/FS

2013 Phase 2 Sediment Study

---

**Project Number:** 36310189  
**Station Identifier:** 3-R3

**Anchor Point (max 3):** 1 2 3  
**Drop #:** 1 2 3  
**Cast Time:** 1017

**Angle (< 5°max):** Yes  
**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted  
   - Rejected

**Sample Location:**  
**EASTING:** 432297.58  
**NORTHING:** 709130.57

**Sample Acceptance Criteria:**

- Water Depth (feet): 47.5
- Sampler Penetration (inches):
- Cultural Resources Observed? No

---

**Porewater**  
Cumulative Percent of Porewater Syringe filled: ___%  
**pH of Sediment in Sampler:** NR

**Sediment Characteristics**

- **Type:**  
  - % Silt: (1/2 - 1/6 mm)
  - % Sand: (1/32 - 1/16 mm)
  - % Gravel: (% 6-4"
  - % Cobbles: (% 4"
  - % Silica Glass:

- **Color:** Munsell Color Chart #:  
  - Description:  

- **Redox Boundary:** Present? Yes  
  - Depth Below Sediment Surface (inches):  
  - Odor: None  
  - Other: Hydrogen sulfide

**Amphipods:**  
**Debris(twigs/leaves):**  
**Tubes:**  
**Macrophytes:**

**Sample Collected Using**

- **Van Veen**  
- **Eckman**  
- **Ponar**  
- **Shovel**

**Sediment in Grab:**

- **Homogenized Sample:**
- **Other:**

**Photo Numbers's**

- **Sediment in Grab:**  
  - Time: 1:00:00

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

---

**Sample Lead Initials:** 2  
**Date:** 10/15/13  
**Field Supervisor Initials:** AK  
**Date:** 10/15/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Project Number: 36310189
Station Identifier: 3-B3

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time: 1023
Angle (< 5° max) Yes No

Sample Location: 432297.08' (NAD 83 UTM Zone 11 North)
EASTING: 432297.08' NORTHING: 3409119.46'

Water Depth (feet): 45.6'
Sampler Penetration (inches): rock-cobbly
Cultural Resources Observed? No Yes

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __ ___ % Accepted Rejected
pH of Sediment in Sampler: NR su Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble %
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
If present -- Depth Below Surface (inches):
Odor: None Hydrogen sulfide
Other:

Amphipods: Tubes: Macrophytes:
Debris(twigs/leaves): Other:

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>Pomar</td>
<td>Shovel</td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: Date: 10/15/13
Field Supervisor Initials: Date: 10/15/13
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

## Project Number: 36310189

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Angle (&lt; 5° max)</th>
<th>Sampler Penetration (inches)</th>
<th>Sample Location:</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10:22</td>
<td>Yes</td>
<td>3</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td>45.5</td>
</tr>
</tbody>
</table>

## Cultural Resources Observed?
- No
- Yes

### Sample Acceptance Criteria:
1. **Sampler overfilled or sediment pressed against top of sampler?**  
   - Accepted
   - Rejected

2. **Overlying water present?**  
   - Accepted
   - Rejected

3. **Overlying water excessively turbid?**  
   - Accepted
   - Rejected

4. **Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?**  
   - Accepted
   - Rejected

5. **Desired penetration depth (4 to 6 inches) achieved?**  
   - Accepted
   - Rejected

6. **Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?**  
   - Accepted
   - Rejected

7. **Sample is:**  
   - Accepted
   - Rejected

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Odor:
- None
- Hydrogen sulfide

### Amphipods:
- Present
- Absent

### Debris (twigs/leaves):
- Present
- Absent

### Macrophytes:
- Present
- Absent

### Stratified Sediment:
- Yes
- No

### Sheen Present:
- Yes
- No

### Sample Collected Using:
- Van Veen
- Eckman
- Ponar
- Shovel

### Sediment in Grab:
- Sediment in Grab: 115-0425  
  - Time: 10:28

### Homogenized Sample:
- Time: 10:28

### Photo Numbers:
- (see Photo Log for descriptions)

### Pore Water (PW) Sample ID:
- Time:  
  - # Containers: 
  - Volume: |

### Pore Water pH of Sediment in Sampler:
- Expected:
- Accepted

### Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

Sample Lead Initials:  
Sample ID Date: 10/15/13  
Field Supervisor Initials:  
Date: 10/15/13
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 3-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 25.2'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1034</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>Sample Location: (NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td></td>
<td>NORTHING: 5409138.90</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled: ___%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:** MR su Description:

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (1/16 mm)</th>
<th>Color: Munsell Color Chart #: Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand (1/16 - 2 mm)</th>
<th>Redox Boundary: Present? Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Gravel</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Macrophytes:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td>Time: 1041 (see Photo Log for descriptions)</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td>Time: 1041</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Photo Numbers `s**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** R  Date: 10/15/13  
**Field Supervisor Initials:** C  Date: 10/15/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 3-03

Anchor Point (max 3) | Water Depth (feet): 81.2
---|---
1 | 2 | 3 | Cast Time: 10:44

Drop # | Sampler Penetration (inches): 8"
---|---
1 | 2 | 3

Angle (< 5°max) | Cultural Resources Observed?
---|---
Yes | No

Sample Location: (NAD_83_UTM_Zone_11_North)
EASTING: 432,252.13
NORTHING: 540,912.73

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? | YES | NO
2. Overlying water present? | YES | NO
3. Overlying water excessively turbid? | YES | NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | YES | NO
5. Desired penetration depth (4 to 6 inches) achieved? | YES | NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | YES | NO
7. Sample is: | Accepted | Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: Accepted | Rejected

pH of Sediment in Sampler: NR su Description: insufficient pore water.

Sediment Characteristics

Type: % Silt | Color: Munsell Color Chart #: 5 YR 5/2
--- | ---
5 (<1/16 mm) | Description: Black/white gray sand grains
% Sand | Redox Boundary: Present? No
--- | ---
95 (1/16 - 2 mm) | If present -- Depth Below Sediment Surface (inches):
% Gravel
% Cobbles
% Silica Glass:

Amphipods: Tubules: Macrophytes:
Debris(twigs/leaves):

Sample Collected Using
Van Veen | Sediment in Grab:
--- | ---
Eckman | 115-0427
Ponar | Time: 10:48
Shovel | Homogenized Sample:
Other: 115-0428 | Time: 11:34

Sediment (SE) Sample ID: SE-3-03 | Time: 11:29 | # Containers: 4/1 | Volume: 100 %
Duplicate SE Sample ID: MWD0011 | Time: 6:15 | # Containers: 4 | Volume: 100 %
Split SE Samples (EPA/NPS/CCT): | % Containers: | Volume: %
Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: %

Sample Lead Initials: ZF Date: 10/15/13 Field Supervisor Initials: SD Date: 10/15/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
# Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 3-R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/15/13</td>
<td>Vessel: Mazama</td>
</tr>
<tr>
<td>Camera Serial #: TA-2 Pentax</td>
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</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>115-0418</td>
<td>10:01</td>
<td>CM</td>
<td></td>
<td>Site description</td>
</tr>
<tr>
<td>115-0419</td>
<td>10:11</td>
<td>CM</td>
<td>North</td>
<td>Upstream of site</td>
</tr>
<tr>
<td>115-0420</td>
<td>10:11</td>
<td>CM</td>
<td>East</td>
<td>Left bank</td>
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<td>115-0421</td>
<td>10:11</td>
<td>CM</td>
<td>South</td>
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</tr>
<tr>
<td>115-0422</td>
<td>10:11</td>
<td>CM</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>115-0423</td>
<td>10:20</td>
<td>CM</td>
<td></td>
<td>Rock #1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rock #2 Rejected sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rock #3 Rejected sample</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: JKH  Date: 10/15/13
Sample Lead Initials: J2  Date: 10/15/13
**Photo Log**
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 3-R3</th>
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<tbody>
<tr>
<td>Date: 10/15/13</td>
<td>Vessel:</td>
</tr>
<tr>
<td>Camera Serial #:  TA-2 Pentex</td>
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<table>
<thead>
<tr>
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<th>Time: 10:41</th>
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<tbody>
<tr>
<td>Photographer: cm</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description: Gravel &amp; Pebble, Grab #4</td>
<td>Rejected Sample</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 115-0427</th>
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<tbody>
<tr>
<td>Photographer: cm</td>
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<tr>
<td>Photo Orientation:</td>
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</tr>
<tr>
<td>Description: Gravel</td>
<td>Sample, Grab #5</td>
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</table>

<table>
<thead>
<tr>
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<td>Photographer: cm</td>
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<tr>
<td>Photo Orientation:</td>
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</tr>
<tr>
<td>Description: SE Scop</td>
<td>Grab #5</td>
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<table>
<thead>
<tr>
<th>Photo ID: 115-0429</th>
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</thead>
<tbody>
<tr>
<td>Photographer: MC</td>
<td></td>
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<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description: Homogenized Sample</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
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<tbody>
<tr>
<td>Photographer:</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
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</table>

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
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<tbody>
<tr>
<td>Photographer:</td>
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</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
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<tr>
<td>Description:</td>
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<tr>
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<th>Time:</th>
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<tbody>
<tr>
<td>Photographer:</td>
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<tr>
<td>Photo Orientation:</td>
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<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: jk
Date: 10/15/13

Sample Lead Initials: mm
Date: 10/15/13

*URS*
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10/5/13
Sampling Crew: Rapo/Maurus/DeMent
EPA Observer: C. Erwin
Arrival Time: 11:03
River Stage: Water Surface Elev. (ft): 1285.10
Water Surface Elevation Source: Coulee Dam

Station Identifier: 4-B-3
Vessel: Tahuna
Vessel Crew: Troedean/Chirch/Posy
C.R. Observer: Duprey
Departure Time: 14:13

Weather Conditions Upon Arrival
Temp (°F): 56
Wind (mph): Calm
Clouds/Precipitation: partly cloudy

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 107
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes
Was Vegetation Removed: Yes
Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)
Photo ID: 109-0291 Time: 11:05
Photo ID: 109-0293 Time: 11:05

Camera ID: T4-2 Pentax
Photo ID: 109-0292 Time: 11:04
Photo ID: 109-0295 Time: 11:07

General Notes:
C.R. - cultural resources
Field Supervisor Initials: Jn
Date: 10/6/13
Sample Lead Initials: Jn
Date: 10/5/13
### Sediment/Porewater Sampling Form

**Upper Columbia River R/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>4-B3</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>43.2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time (min):</td>
<td>11:06</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No  Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>EASTING:</td>
<td>420546.15</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5391416.47</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

#### Porewater

- Cumulative Percent of Porewater Syringe filled: ___%
- pH of Sediment in Sampler: 7.81 su
- Description:

#### Sediment Characteristics

- Color: Munsell Color Chart #:
- Description:
- Redox Boundary: Present? **Yes**
- If present -- Depth Below Sediment Surface (inches):
- Odor: None
- Other: Hydrogen sulfide

#### Amphipods:

- Debris (twigs/leaves):
- Other:

#### Photo Numbers 's

- Sediment in Grab: 109-0296
- Time: 11:09
- Homogenized Sample: Other: 109-0297
- Time: 11:11
- Stratified sediment: **Yes**
- Sheen Present: **No**

#### Sediment (SE) Sample ID:

- Time: ____
- # Containers: ____
- Volume: ____ %

#### Duplicate SE Sample ID:

- Time: ____
- # Containers: ____
- Volume: ____ %

#### Split SE Samples (EPA/NPS/CCT):

- Time: ____
- # Containers: ____
- Volume: ____ %

#### Pore Water (PW) Sample ID:

- Time: ____
- # Containers: ____
- Volume: ____ %

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>4-B3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Depth (feet):</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.5</td>
<td>9.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources Observed?</th>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
</tbody>
</table>

### Sample Location:

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? | YES | NO
2. Overlying water present? | YES | NO
3. Overlying water excessively turbid? | YES | NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? | YES | NO
5. Desired penetration depth (4 to 6 inches) achieved? | YES | NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? | YES | NO
7. Sample is: Accepted | Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: 7.65</td>
<td>su</td>
<td>Description:</td>
</tr>
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</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Description:</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Redox Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment Surface (inches):</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris(twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
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<tbody>
<tr>
<td></td>
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### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>No</th>
<th>Sheen Present:</th>
<th>No</th>
<th>Sample Collected Using</th>
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</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td>Ponar</td>
<td></td>
<td>Sediment in Grab: 109.6298</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td>Shovel</td>
<td></td>
<td>Homogenized Sample: 129.6299</td>
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<th>Photo Numbers 's 1124</th>
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<tr>
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<th>Volume:</th>
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<tr>
<td></td>
<td></td>
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<td>%</td>
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<th>Duplicate SE Sample ID:</th>
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<th># Containers:</th>
<th>Volume:</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>%</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>%</td>
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<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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<tbody>
<tr>
<td></td>
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<td></td>
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### Sample Lead Initials

<table>
<thead>
<tr>
<th>Sample ID Format:</th>
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<tbody>
<tr>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
</tr>
<tr>
<td>SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)</td>
</tr>
<tr>
<td>PW-1-B2: Pore Water at Station 1-B2</td>
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<table>
<thead>
<tr>
<th>Field Supervisor Initials</th>
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<tbody>
<tr>
<td>Date: 10/3/13</td>
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| URS |
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Water Depth (feet):</th>
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</thead>
<tbody>
<tr>
<td>36310189</td>
<td>4-BS</td>
<td>43.3</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
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<tbody>
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<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>113</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Yes</th>
<th>No</th>
</tr>
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<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>Sample Acceptance Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 42054589 (NAD_83_UTM_Zone_11_North)</td>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
</tr>
<tr>
<td>NORTHING: 5391413.31</td>
<td>2. Overlying water present?</td>
</tr>
<tr>
<td></td>
<td>3. Overlying water excessively turbid?</td>
</tr>
<tr>
<td></td>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
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<td></td>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
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<td></td>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
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<tr>
<td></td>
<td>7. Sample is:</td>
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**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
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<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>7.60</td>
<td>su</td>
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**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Present?</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td>Odor: None</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Amphipods:**

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<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Photo Numbers' s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
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</table>

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: [Signature]
Date: 4/13
Field Supervisor Initials: [Signature]
Date: 9/13
Sediment/Porewater Sampling Form
Upper Columbia River R/FS
2013 Phase 2 Sediment Study

**Project Number:** 36310189  
**Station Identifier:** 4-B3

- **Anchor Point (max 3):** 1 2 3
- **Water Depth (feet):** 43.3'
- **Drop #:** 1 2 3  
- **Sampler Penetration (inches):** 10"
- **Sample Location:** INAD_83_UTM_Zone_11_North

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:** 7.75
- **pH of Sediment in Sampler:** Description:

**Sediment Characteristics**

- **Type:** % Silt, % Sand, % Gravel, % Cobble, % Silica Glass:
- **Color:** Munsell Color Chart #:
- **Redox Boundary:** Present? **Yes**
- **Odor:** None, Hydrogen sulfide

**Amphipods:**
- **Debris (twigs/leaves):**
- **Sample Collected Using:** Van Veen, Eckman, Ponar, Shovel

**Stratified sediment:**
- **Yes**

**Sheen Present:**
- **Yes**

**Sample Lead Initials:** Date: 9/15/13  
**Field Supervisor Initials:** Date: 9/16/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 4-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 43.2</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1156</td>
<td>Sampler Penetration (inches): 10</td>
</tr>
<tr>
<td>Angle (&lt; 5' max) Yes No</td>
<td>Cultural Resources Observed? Yes No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD_83_UTM_Zone_11_North</td>
</tr>
<tr>
<td>EASTING: 20542.67</td>
<td>NORTING: 39417.95</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: 7.85 su Description:</td>
</tr>
</tbody>
</table>

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;1/16 mm</td>
<td>1/16 - 2 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color: Munsell Color Chart #: 5Y 3/2  
Description: Dark olive gray  
Redox Boundary: Present? Yes No

Amphipods:  
Debris (twigs/leaves):  
Other:  
Tubes:  
Macrophytes:  
Hydrogen sulfide

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sheen Present: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers of (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>Sediment in Grab:</td>
<td>Time: 10:02</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>Homogenized Sample:</td>
<td>Time: 10:02</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>Other:</td>
<td>Time: 10:02</td>
</tr>
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</table>

Sediment (SE) Sample ID: SE-4-B3 Time: 1333 # Containers: 4/3 Volume: 100.0%

Duplicate SE Sample ID:  
# Containers:  
Volume:  

Split SE Sample (EPA/NPS/CCT): MPS-SE-4-B3 # Containers: 2 Volume: 80%

Pore Water (PW) Sample ID: PW-4-B3 Time: 1318 # Containers: 3.00 Volume: 100.0%

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: JF Date: 10/1/13  
Field Supervisor Initials: GH Date: 10/4/13
## Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 4-B3</th>
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</thead>
<tbody>
<tr>
<td>Date: 10/5/13</td>
<td>Vessel: Tahoma</td>
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<tr>
<td>Camera Serial #:  TA-2 Pentax</td>
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<table>
<thead>
<tr>
<th>Photo ID: 109-0290</th>
<th>Time: 11:05</th>
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</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
</tr>
<tr>
<td>Photo Orientation:</td>
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</tr>
<tr>
<td>Description:</td>
<td>Station ID 4-B3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 109-0291</th>
<th>Time: 11:06</th>
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<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
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<tr>
<td>Photo Orientation:</td>
<td>North</td>
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<tr>
<td>Description:</td>
<td>Upstream of site</td>
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</table>

<table>
<thead>
<tr>
<th>Photo ID: 109-0292</th>
<th>Time: 11:06</th>
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</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
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<tr>
<td>Photo Orientation:</td>
<td>East</td>
</tr>
<tr>
<td>Description:</td>
<td>Left bank</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 109-0293</th>
<th>Time: 11:06</th>
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</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
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<tr>
<td>Photo Orientation:</td>
<td>West</td>
</tr>
<tr>
<td>Description:</td>
<td>Right bank</td>
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</table>

<table>
<thead>
<tr>
<th>Photo ID: 109-0295</th>
<th>Time: 11:07</th>
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</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td>South</td>
</tr>
<tr>
<td>Description:</td>
<td>Downstream of site</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 109-0296</th>
<th>Time: 11:09</th>
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</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
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<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>SE Sample grab #1</td>
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<table>
<thead>
<tr>
<th>Photo ID: 109-0297</th>
<th>Time: 11:11</th>
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</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
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<td>Photo Orientation:</td>
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</tr>
<tr>
<td>Description:</td>
<td>SE Scoop grab #1</td>
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</table>

<table>
<thead>
<tr>
<th>Photo ID: 109-0298</th>
<th>Time: 11:34</th>
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</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td>BM</td>
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<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>SE Sample grab #2</td>
</tr>
</tbody>
</table>

**Field Supervisor Initials:**  
**Date:** 10/6/13

**Sample Lead Initials:**  
**Date:** 10/5/13

**URS**
# Photo Log

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 4-B-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/5/13</td>
<td>Vessel: Tahoma</td>
</tr>
<tr>
<td>Camera Serial #: TA-2 Pentax</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>109-0304</td>
<td>11:25</td>
<td>BM</td>
<td>SE Scoop</td>
<td>grab #2</td>
</tr>
<tr>
<td>109-0300</td>
<td>11:37</td>
<td>BM</td>
<td></td>
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</tr>
<tr>
<td>109-0301</td>
<td>11:37</td>
<td>BM</td>
<td>SE Scoop</td>
<td>grab #3</td>
</tr>
<tr>
<td>109-0302</td>
<td>11:50</td>
<td>BM</td>
<td></td>
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<tr>
<td>109-0303</td>
<td>11:51</td>
<td>BM</td>
<td>SE Scoop</td>
<td>grab #4</td>
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<tr>
<td>109-0304</td>
<td>12:02</td>
<td>BM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>109-0305</td>
<td>12:02</td>
<td>BM</td>
<td>SE Scoop</td>
<td>grab #5</td>
</tr>
<tr>
<td>109-0306</td>
<td>13:32</td>
<td>BM</td>
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</table>

**Field Supervisor Initials:**

**Sample Lead Initials:**

---

**URS**
<table>
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<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>109-0307</td>
<td>13:47</td>
<td>RM</td>
<td></td>
<td>MPS - SE - 4-B3 CoE for MPS split</td>
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</table>

Field Supervisor Initials: [Signature] Date: 10/6/13
Sample Lead Initials: [Signature] Date: 10/5/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 48-c2
Date: 10-4-13
Vessel: Tahoma
Sampling Crew: JR/BM/SM
Vessel Crew: Anderson/Schaffer/Poissy
EPA Observer: C. Trimm
C.R. Observer: Depuyet
Arrival Time: 0843
Departure Time: 1102
River Stage:
Weather Conditions Upon Arrival:
Water Surface Elev. (ft):
Temp (°F):
Water Surface Elevation Source:
Wind (mph):
Coulee Dam
Clouds/Precipitation: mostly clear

Site Information:

Boat Position: [Powered] (Anchored)
River Mile: 6.98
River Current: [Swift] [Eddie] [Calm] [Ripple]

Water Surface:
Boat Traffic: support boats
(Calm) (Small Waves) (Open)
stirred/gravel/derry
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands,
ocbows, outfalls, roads, houses,
campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-0251</td>
<td>0843</td>
<td>TA-2 pentax</td>
</tr>
<tr>
<td>108-0253</td>
<td>0848</td>
<td></td>
</tr>
</tbody>
</table>

General Notes:

C.R. - cultural resources
Field Supervisor Initials: 104 Date: 10/4/13
Sample Lead Initials: 2 Date: 10-4-13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: 4B-C2
Anchor Point (max 3) 1 2 3  Water Depth (feet): 73.2
Drop # 1 2 3  Cast Time: 0844
Angle (< 5' max) Yes No  Sampler Penetration (inches): >13"
Cultural Resources Observed? No Yes
Sample Location: 416740.61 (NAD_83_UTM_Zone_11_North)
EASTING: 5379558.83 NORTING: 5379558.83

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected
pH of Sediment in Sampler: NR su Description: __

Sediment Characteristics
Type: % Silt 100 (<1/16 mm) Color: Munsell Color Chart #:
% Sand (1/16 - 2 mm) Description: __
% Gravel __
% Cobbles __
% Silica Glass __

Redox Boundary: Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide

Amphipods: 
Debris (twigs/leaves): 
Tubes: 
Macrophytes: 

Sample Collected Using
Stratified sediment: Yes No
Sheen Present: Yes No
Sample in Grab: Sediment in Grab: 108-0265
Homogenized Sample: Time: 0849
Other: Time: 

Sediment (SE) Sample ID: 108-0265 Time: 0849 # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample Lead Initials: ___ Date: 10-4-13 Field Supervisor Initials: ___ Date: 10/4/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>4B-C2</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>75.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Time:</td>
<td>09:09</td>
</tr>
<tr>
<td>Water Samplers:</td>
<td>Angles (&lt; 5° max): Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>Yes No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 416724.72 NAD_83 UTM Zone_11_North</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

#### Porewater

| Cumulative Percent of Porewater Syringe filled: | 100% |
| pH of Sediment in Sampler: | 7.26 su |
| Description: | |

#### Sediment Characteristics

| Type: | % Silt | 100 (<1/16 mm) |
| % Sand | | (1/16 - 2 mm) |
| % Gravel | | |
| % Cobbles | | |
| % Silica Glass: | | |

| Color: | Munsell Color Chart # |
| Description: | 5Y 2 1/ |

| Redox Boundary: | Present? | Yes No |
| If present -- Depth Below Sediment Surface (inches): | |
| Odor: | None | Slight |
| Hydrogen sulfide: | |

#### Amphipods:

| Debris/(twigs/leaves): | Tube: | Macrophytes: |
| Stratified sediment: Yes | No | |
| Sheen Present: Yes | No | |

| Sample Collected Using | Photo Numbers 's |
| Van Veen | (see Photo Log for descriptions) |
| Eckman | 108-0256 |
| Ponar | Time: 09:14 |
| Shovel | 108-0257 |
| Sediment in Grab: Other: | |
| Homogenized Sample | 102 |
| Time: 02:35 |
| Time: 02:35 |

| Sediment (SE) Sample ID: | SE-4B-C2 |
| Time: 10:32 | # Containers: 4 1 | Volume: 100/80 |
| Duplicate SE Sample ID: | mud-ww |
| Time: 09:00 | # Containers: 4 1 | Volume: |
| Split SE Samples (EPA/NPS/CCT): | |
| Pore Water (PW) Sample ID: | PW-4B-C2 |
| Time: 10:05 | # Containers: 3 | Volume: 100 |

| Sample Lead Initials: | 2 |
| Date: | 08-4-13 |
| Field Supervisor Initials: | OH |
| Date: | 09-6-13 |

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
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<tbody>
<tr>
<td>108-0247</td>
<td>8:45</td>
<td>Station ID 4B-C2</td>
<td>BM</td>
<td>East</td>
</tr>
<tr>
<td>108-0251</td>
<td>8:48</td>
<td>upstream of station</td>
<td>BM</td>
<td>West</td>
</tr>
<tr>
<td>108-0252</td>
<td>8:48</td>
<td>Left bank</td>
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<td>South</td>
</tr>
<tr>
<td>108-0253</td>
<td>8:48</td>
<td>Rejected Sample grab #1</td>
<td>BM</td>
<td>Downstream of station</td>
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<td>8:48</td>
<td>grab #1</td>
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<td></td>
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<td>108-0255</td>
<td>8:49</td>
<td>5E Sample grab #2</td>
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<td>108-0256</td>
<td>9:14</td>
<td>5E Scoop grab #2</td>
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</table>

Field Supervisor Initials: [Signature] Date: 10/4/13
Sample Lead Initials: [Signature] Date: 10/4/13
## Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Camera Serial #</th>
<th>Vessel</th>
<th>Station Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-025-8</td>
<td>10:23</td>
<td>SE homogenized sample grab #2</td>
<td>TA-2 Pentax</td>
<td>Tahoma</td>
<td>4B-C2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [signature]  
Date: **10/6/13**

Sample Lead Initials: [signature]  
Date: **10-4-13**

**URS**
# Sample Location Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10-1-13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>Rapp/Hale/Moore</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>Tenel</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>0854</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td>1284.90</td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td>Coulee Dam</td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Boat Position:</td>
<td>(Powered) (Anchored)</td>
</tr>
<tr>
<td>River Mile:</td>
<td>0.88</td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm) (Small Waves) (Choppy)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes (No)</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>Yes (No)</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td></td>
</tr>
<tr>
<td>(see Photo Log for descriptions)</td>
<td></td>
</tr>
<tr>
<td>Photo ID: 107-0219</td>
<td>Time: 0854</td>
</tr>
<tr>
<td>Photo ID: 107-0221</td>
<td>Time: 0855</td>
</tr>
<tr>
<td>Camera ID: TA-2 pentax</td>
<td></td>
</tr>
<tr>
<td>Photo ID: 107-0225</td>
<td>Time: 0855</td>
</tr>
<tr>
<td>Photo ID: 107-0222</td>
<td>Time: 0855</td>
</tr>
<tr>
<td>General Notes:</td>
<td></td>
</tr>
<tr>
<td>C.R. - cultural resources</td>
<td></td>
</tr>
<tr>
<td>Field Supervisor Initials:</td>
<td></td>
</tr>
<tr>
<td>Date: 10/1/13</td>
<td></td>
</tr>
<tr>
<td>Sample Lead Initials:</td>
<td></td>
</tr>
<tr>
<td>Date: 10-1-13</td>
<td></td>
</tr>
</tbody>
</table>

**Station Identifier:** 4B-C1  
**Vessel:** Tahoma  
**Vessel Crew:** Teodeau, Schofield, Bossey  
**C.R. Observer:** Drury  
**Departure Time:** 1044  
**Weather Conditions Upon Arrival**  
Temp (°F): 50°F  
Wind (mph): calm  
Clouds/Precipitation: partly cloudy  

**River Current:** (Swift) (Eddy) (Calm) (Ripple)  
**Boat Traffic:** support boats  
**Water Surface:** (Swift) (Eddy) (Calm) (Ripple)  
**Surface Vegetation Present:** Yes (No)  
**Was Vegetation Removed:** Yes (No)  

| Camera ID: TA-2 pentax |
| Photo ID: 107-0219 | Time: 0854 |
| Photo ID: 107-0221 | Time: 0855 |
| Photo ID: 107-0225 | Time: 0855 |
| Photo ID: 107-0222 | Time: 0855 |
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Location:</td>
<td>NAD_83_UTM_Zone_11_North</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample ID Format:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
<td>SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)</td>
</tr>
<tr>
<td>PW-1-B2: Pore Water at Station 1-B2</td>
<td></td>
</tr>
</tbody>
</table>

**Station Identifier:** 4B-C4

| Water Depth (feet): | 42.3 |
| Sampler Penetration (inches): | 9 |

**Porewater**

| Cumulative Percent of Porewater Syringe filled: | 100 % |
| pH of Sediment in Sampler: | 8.98 |

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>97 (&lt;1/16 mm)</td>
<td>3 (1/16-2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

| Stratified sediment: | Yes | No |
| Sheen Present: | Yes | No |

**Debris (twigs/leaves):**

| Sample Collected Using: | Van Veen | Eckman | Ponar | Shovel |

**Photo Numbers:**

| Sediment in Grab: 4B-C4: | Time: 09:05 |
| Sediment in Homogenized Sample: | Time: 16:13 |
| Sediment in Split Samples (EPA/NPS/CCT): | Time: 09:11 |

| Sediment (SE) Sample ID: | SE-4B-C4: | Time: 10:15 |
| Duplicate SE Sample ID: | | |
| Split SE Samples (EPA/NPS/CCT): | # Containers: 4/1 | Volume: 100 % |

| Pore Water (PW) Sample ID: | PW-4B-C4: | Time: 10:00 |
| Pore Water (PW) Sample ID: | | |
| # Containers: 3 | Volume: 100 % |

| Sample Lead Initials: | 10-1-13 |
| Field Supervisor Initials: | 10-1-13 |

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-0219</td>
<td>8:54</td>
<td>BM</td>
<td></td>
<td>Station ID</td>
</tr>
<tr>
<td>107-0220</td>
<td>8:55</td>
<td>BM</td>
<td></td>
<td>upstream of station</td>
</tr>
<tr>
<td>107-0221</td>
<td>8:55</td>
<td>BM</td>
<td>East</td>
<td>bank</td>
</tr>
<tr>
<td>107-0222</td>
<td>8:55</td>
<td>BM</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>107-0223</td>
<td>8:55</td>
<td>BM</td>
<td>South</td>
<td>downstream of station</td>
</tr>
<tr>
<td>107-0224</td>
<td>9:11</td>
<td>BM</td>
<td></td>
<td>SE grab #1</td>
</tr>
<tr>
<td>107-0225</td>
<td>9:11</td>
<td>BM</td>
<td></td>
<td>SE scoop</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>homogenized SE grab #1</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature]  Date: 10/1/13
Sample Lead Initials: [Signature]  Date: 10/1/13

URS
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 38310189
Station Identifier: 4-c1
Date: 10/7/13
Vessel: Tahoma
Sampling Crew: Rapp/mwtrs/McDame
Vessel Crew: Tuckel/Shea/Fer/Reey
EPA Observer: Eune
C.R. Observer: Depayet
Arrival Time: 12:55
Departure Time: 14:40
Weather Conditions Upon Arrival
River Stage: Water Surface Elev. (ft): 1285.50
Weather Conditions: Temp (°F): 67°
Water Surface Elevation Source: Coulee Dam
Wind (mph): increasing 10
Clouds/Precipitation: mostly cloudy

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 710
River Current: (Swift) (Eddie) (Calm) (Ripple)
Boat Traffic: support boats
Water Surface: (Calm) (Small Waves) (Cropp)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No
Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)
Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID: TA-2 pentax
Photo ID: 110-0321 Time: 1258
Photo ID: Time: 
Photo ID: Time:
General Notes:

C.R. - cultural resources
Field Supervisor Initials DJH Date: 10/8/13
Sample Lead Initials 10/7/13
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

### Project Number: 363:0189  
Station Identifier: 4-C1

**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):** 70.4

**Drop #:** 1 2 3  
**Cast Time:** 1259  
**Sampler Penetration (inches):** 28

**Angle (< 5°max):** Yes  
**Cultural Resources Observed?** No  
**Yes**

**Sample Location:**  
**EASTING:** 474,176.92  
**NORTHING:** 539,2319.97  

**Sample Acceptance Criteria:**

1. **Sampler overfilled or sediment pressed against top of sampler?**  
   - Yes  
   - No  
   - Yes

2. **Overlying water present?**  
   - Yes  
   - No  
   - No

3. **Overlying water excessively turbid?**  
   - Yes  
   - No  
   - No

4. **Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?**  
   - Yes  
   - No  
   - No

5. **Desired penetration depth (4 to 6 inches) achieved?**  
   - Yes  
   - No  
   - No

6. **Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?**  
   - Yes  
   - No  
   - No

7. **Sample is:**  
   - Accepted  
   - Rejected

### Porewater

**Cumulative Percent of Porewater Syringe filled:** ____.  
**Accepted**  
**Rejected**

**pH of Sediment in Sampler:** NR

**Description:**

### Sediment Characteristics

**Type:**  
- % Silt: _ (≤1/16 mm)
- % Sand: _ (1/16 - 2 mm)
- % Gravel: _
- % Cobbles: _
- % Silica Glass: _

**Color:** Munsell Color Chart #: _

**Description:** _

**Redox Boundary:**  
- Present? Yes  
- Present? No

**Sediment Surface (inches):** _

**Odor:** None

**Other:** Hydrogen sulfide

### Amphipods

**Debris/twigs/leaves:**

**Sample Collected Using:**

- Van Veen
- Eckman
- Ponor
- Shovel

**Photo Numbers:**

(see Photo Log for descriptions)

**Sediment in Grab:**

- ID: 110-0232
- Time: 13:03

**Homogenized Sample:**

- Time:
- # Containers:
- Volume:
- %

**Other:**

- Time:
- # Containers:
- Volume:
- %

### Sediment (SE) Sample ID:

- Time:
- # Containers:
- Volume:
- %

### Duplicate SE Sample ID:

- Time:
- # Containers:
- Volume:
- %

### Split SE Samples (EPA/NPS/CCT):

- Time:
- # Containers:
- Volume:
- %

### Pore Water (PW) Sample ID:

- Time:
- # Containers:
- Volume:
- %

**Sample Lead Initials:** A
**Date:** 10/7/15

**Field Supervisor Initials:** A
**Date:** 10/8/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>64.8</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time 1306</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location: NAD_83_UTM_Zone_11_North</td>
<td></td>
</tr>
<tr>
<td>EASTING: 424153.20</td>
<td></td>
</tr>
<tr>
<td>NORTHING: 5392336.07</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  YES NO
2. Overlying water present?  YES NO
3. Overlying water excessively turbid?  YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  YES NO
5. Desired penetration depth (4 to 6 inches) achieved?  YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  YES NO
7. Sample is: Accepted Rejected

Porewater

| Cumulative Percent of Porewater Syringe filled: ___% |
| pH of Sediment in Sampler: NR su |

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves):

Tubes: Other:

Macrophytes: Sample Collected Using

| Stratified sediment: Yes | No |
| Sheen Present: Yes       | No |

| Van Veen | Eckman | Ponnar | Shovel |

| Sediment in Grab: 10/0314 Time: 1311 |
| Homogenized Sample: |
| Other: |

| Sediment (SE) Sample ID: | Time: | # Containers: | Volume: |
| Duplicate SE Sample ID:  | Time: | # Containers: | Volume: |
| Split SE Samples (EPA/NPS/CCT): | | # Containers: | Volume: |
| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: |

Sample Lead Initials: PM Date: 10/15/13 Field Supervisor Initials: AH Date: 10/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Project Number: 36310189
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1323
Angle (<5°max) Yes No
Cultural Resources Observed? No Yes
Sample Location: 424463.19 (NAD_83_UTM_Zone_11_North)
EASTING: 5392309.22 NORTHING:

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: _____%
Description: ________

pH of Sediment in Sampler: NR su

Sediment Characteristics
Type: % Silt (%<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles % Silica Glass:
Color: Munsell Color Chart #:
Description: ________
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide

Amphipods: Debris (twigs/leaves):
Tubes: Other:
Sample Collected Using: Van Veen
Sheen Present: Yes No
Ponar Shovel
Homogenized Sample:
Sediment in Grab: 10-13-08 Time: 13:29
Other: Time:
Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: [Signature] Date: 10/7/13 Field Supervisor Initials: [Signature] Date: 10/9/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>4-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>65'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>1334</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td>[NAD 83 UTM Zone 11 North]</td>
<td>EASTING: 424123.59</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: <NR su Description: ___

Sediment Characteristics
Type: % Silt <1/16 mm
 % Sand 1/16 - 2 mm
 % Gravel
 % Cobbles
 % Silica Glass
Color: Munsell Color Chart #: Description: ___
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): ___
Odor: None Other: Hydrogen sulfide

Amphipods: Tubes: Macrophytes:
Debris (twigs/leaves): Other: ___

Sample Collected Using
Van Veen Eckman Ponor Shovel

Photo Numbers (see Photo Log for descriptions)
Sediment in Grab: 110-0326 Time: 1339
Homogenized Sample: Time: ___
Other: Time: ___

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %
Split SE Samples (EPA/NPS/CCT): ___ Time: ___ # Containers: ___ Volume: ___ %
Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___ %

Sample Load Initials: ___ Date: 10/7/13 Field Supervisor Initials: ___ Date: 10/8/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Project Number: 36310199</th>
<th>Station Identifier: H-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet)</td>
<td>67.8</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>349</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>4&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes</td>
<td>No No Yes</td>
</tr>
<tr>
<td>Cultural Resources Observed? Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location: [NAD 83 UTM Zone 11 North]</td>
<td></td>
</tr>
<tr>
<td>EASTING: 424136.70</td>
<td></td>
</tr>
<tr>
<td>NORTHING: 3392319.27</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater

Cumulative Percent of Porewater Syringe filled: ___%  
Accepted  Rejected

pH of Sediment in Sampler: [NR] su  
Description: __________

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>_______</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td>None Hydrogen sulfide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods

Debris (twigs/leaves): Other: ____________

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td>Ponar</td>
<td>Shovel</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample: Time:</td>
<td>1354 Time:</td>
<td></td>
</tr>
<tr>
<td>Other: Time:</td>
<td></td>
<td></td>
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### Photo Numbers’ (see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials [NR] Date: 07/13  Field Supervisor Initials: [NR] Date: 05/13
**Sediment/Porewater Sampling Form**
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310169</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>6.1'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>42.4162 35 [NAD 83 UTM Zone 11 North]</td>
</tr>
<tr>
<td>EASTING:</td>
<td>5392361.21</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
</tbody>
</table>

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**
Cumulative Percent of Porewater Syringe filled: _____% Accepted Rejected
pH of Sediment in Sampler: NR su Description: 

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (≤ 1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass:</th>
</tr>
</thead>
</table>

Color: Munsell Color Chart #: Description: 
Redox Boundary: Present? Yes No If present -- Depth Below Sediment Surface (inches): 
Odor: None Hydrogen sulfide

Amphipods: (see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Collected Using</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td>Shovel</td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td>110 - 0328</td>
</tr>
<tr>
<td>Time: 14:06</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 10/7/13 Field Supervisor Initials: Date: 10/8/13
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>4-C1</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>64.3'</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3 Cast Time:</td>
<td>409</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

Sample Location:  
EASTING: 424158.29  
NORTHING: 5392338.05  
(NAD_83 UTM Zone 11 North)

Sample Acceptance Criteria:

1. Sampler over filled or sediment pressed against top of sampler?  
   YES NO
2. Overlying water present?  
   YES NO
3. Overlying water excessively turbid?  
   YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   YES NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   YES NO
7. Sample is:  
   Accepted Rejected

Porewater:  
Cumulative Percent of Porewater Syringe filled: ___%  
Accepted Rejected
pH of Sediment in Sampler: MA su Description: 

Sediment Characteristics:

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Redox Boundary:  
Present? Yes No  
If present -- Depth Below Sediment Surface (inches):  
Odor: None Hydrogen sulfide Other: 

Amphipods:  
Debris (twigs/leaves):  
Other: 

Sample Collected Using:  
Van Veen Eckman Ponar Shovel

Photo Numbers 's  
(see Photo Log for descriptions)

Sediment Sample ID:  
Time: 
# Containers:  
Volume:  
%

Duplicate SE Sample ID:  
Time: 
# Containers:  
Volume:  
%

Split SE Samples (EPA/NPS/CCT):  
Time: 
# Containers:  
Volume:  
%
Pore Water (PW) Sample ID:  
Time: 
# Containers:  
Volume:  
%

Sample Lead Initials:  
Date: 10/7/13  
Field Supervisor Initials:  
Date: 10/8/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number</th>
<th>35310189</th>
<th>Station Identifier</th>
<th>4-c1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet)</td>
<td>64.9</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>14:14</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Sampler Penetration (inches)</td>
<td>~ 4</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD 83 UTM Zone 11 North</td>
<td>EASTING: 424128.61</td>
<td>NORTHING: 5392329.93</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler</td>
<td>su</td>
<td></td>
</tr>
</tbody>
</table>

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Present? Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers’ (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>Sediment in Grab: 110-0324</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Poral</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: 11 Date: 10/7/13 Field Supervisor Initials: DA Date: 10/8/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form

## Upper Columbia River RI/FS

### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>363'0189</td>
<td>4-C1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>6.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1421</td>
<td>4&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Sample Location:

<table>
<thead>
<tr>
<th>EASTING:</th>
<th>NORTING:</th>
</tr>
</thead>
<tbody>
<tr>
<td>424136.00</td>
<td>6392324.89</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

### Porewater

Cumulative Percent of Porewater Syringe filled: ___.%  
 Accepted  | Rejected

pH of Sediment in Sampler: **NR**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>(%):</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td>&lt;1/16 mm</td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present -- Depth Below</td>
<td>Yes</td>
</tr>
</tbody>
</table>

| Sediment Surface (inches): | | |

| Odor: | | |
|-------| | Hydrogen sulfide |

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris (twigs/leaves):</td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Collected Using

- Van Veen
- Eckman
- Ponor
- Shovel

### Photo Numbers:

- Sediment in Grab: 110-2330
- Time: 14:25
- Homogenized Sample: 14:25
- Other: 14:25

### Sediment (SE) Sample ID:

- Time: _
- # Containers: _
- Volume: _

### Duplicate SE Sample ID:

- Time: _
- # Containers: _
- Volume: _

### Split SE Samples (EPA/NPS/CCT):

- Time: _
- # Containers: _
- Volume: _

### Pore Water (PW) Sample ID:

- Time: _
- # Containers: _
- Volume: _

---

Sample Lead Initials: **MM**

Date: 10/7/13

Field Supervisor Initials: **DT**

Date: 10/6/13

---

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 4C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/7/13</td>
<td>Vessel: Tahoma</td>
</tr>
<tr>
<td>Camera Serial #: TA-2 Pentax</td>
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<table>
<thead>
<tr>
<th>Photo ID: 110-0321</th>
<th>Time: 12:58</th>
<th>Photographer: BM</th>
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<tbody>
<tr>
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<td>Description: 4-C1</td>
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<table>
<thead>
<tr>
<th>Photo ID: 110-0322</th>
<th>Time: 13:03</th>
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<tbody>
<tr>
<td>Photo Orientation:</td>
<td>Description: Rejected Sample, Grab #1</td>
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<table>
<thead>
<tr>
<th>Photo ID: 110-0324</th>
<th>Time: 13:11</th>
<th>Photographer: BM</th>
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<tbody>
<tr>
<td>Photo Orientation:</td>
<td>Description: Rejected Sample, Grab #2</td>
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<table>
<thead>
<tr>
<th>Photo ID: 110-0325</th>
<th>Time: 13:29</th>
<th>Photographer: BM</th>
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<tbody>
<tr>
<td>Photo Orientation:</td>
<td>Description: Rejected Sample, Grab #3</td>
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</table>

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Photo Orientation:</td>
<td>Description: Rejected Sample, Grab #4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 110-0327</th>
<th>Time: 13:54</th>
<th>Photographer: BM</th>
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</thead>
<tbody>
<tr>
<td>Photo Orientation:</td>
<td>Description: Rejected Sample, Grab #5</td>
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</tbody>
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<tr>
<th>Photo ID: 110-0328</th>
<th>Time: 14:06</th>
<th>Photographer: BM</th>
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</thead>
<tbody>
<tr>
<td>Photo Orientation:</td>
<td>Description: Rejected Sample, Grab #6 - Rocks</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 110-0329</th>
<th>Time: 14:18</th>
<th>Photographer: BM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo Orientation:</td>
<td>Description: SF Sample, Grab #8</td>
<td></td>
</tr>
</tbody>
</table>

**Field Supervisor Initials:**  
Date: 10/8/13  
Sample Lead Initials:  
Date: 10/7/13
Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project: 36310189
Date: 10/7/13
Camera Serial #: TA-2 Pentax

Station Identifier: 4-C1
Vessel: Tahona

Photo ID: 400-0830 Time: 14:25
Photographer: BM
Photo Orientation: 
Description: Rejected sample grad 9

Photo ID: Time:
Photographer:
Photo Orientation:
Description:

Photo ID: Time:
Photographer:
Photo Orientation:
Description:

Photo ID: Time:
Photographer:
Photo Orientation:
Description:

Photo ID: Time:
Photographer:
Photo Orientation:
Description:

Field Supervisor Initials: 10/8/13
Sample Lead Initials: 10/7/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 4 - C 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/7/13</td>
<td>Vessel: Tobona</td>
</tr>
<tr>
<td>Sampling Crew: Rupp/Murow/McDaniel</td>
<td>Vessel Crew: Trotter/Schatz/Ah/Pasey</td>
</tr>
<tr>
<td>EPA Observer: Lounge</td>
<td>C.R. Observer: Dypret</td>
</tr>
<tr>
<td>Arrival Time: 0847</td>
<td>Departure Time: 1239</td>
</tr>
<tr>
<td>River Stage:</td>
<td>Weather Conditions Upon Arrival</td>
</tr>
<tr>
<td>Water Surface Elev. (ft): 1285.5</td>
<td>Temp (°F): 49°</td>
</tr>
<tr>
<td>Water Surface Elevation Source: Coolee Dam</td>
<td>Wind (mph): Calm ≤ 5</td>
</tr>
<tr>
<td>Site Information:</td>
<td>Clouds/Precipitation: mostly clear</td>
</tr>
<tr>
<td>Boat Position: (Powered) (Anchored)</td>
<td>River Current: (Swift) (Eddie) (Calm) (Ripple)</td>
</tr>
<tr>
<td>River Mile: 707</td>
<td>Boat Traffic: support boats</td>
</tr>
<tr>
<td>Water Surface: (Calm) (Small Waves) (Choppy)</td>
<td>Notable shore surface features: Kettle River mouth, Log booms,</td>
</tr>
<tr>
<td>Surface Vegetation Present: Yes No</td>
<td>(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
</tr>
<tr>
<td>Was Vegetation Removed: Yes No</td>
<td></td>
</tr>
</tbody>
</table>

Sample Location Photo IDs: (see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>648</td>
<td>0934</td>
<td>839</td>
<td>0934</td>
<td>74.2 Portal</td>
</tr>
<tr>
<td>938</td>
<td>0934</td>
<td>797</td>
<td>0934</td>
<td></td>
</tr>
</tbody>
</table>

General Notes:
Completed 9 grabs. Set aside material from grab #3 as acceptable but continued attempts to find material with less woody debris. Processed sampled from grab #3. Utilized phone camera to document work at site 4-C2.

C.R. - cultural resources

Field Supervisor Initials: [Signature] Date: 10/8/13

Sample Lead Initials: [Signature] Date: 10/7/13

URS
## Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>4 - C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>29.0'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1855</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Sampler Penetration (inches):</td>
<td>2.5'</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 418345 14 (NAD_83_UTM_Zone_11_North)</td>
<td>NORTHING: 5392011.34</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>NR</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th></th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Redox Boundary: Present? Yes No</td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td>If present -- Depth Below sediment surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

### Amphipods:
- Debris (twigs/leaves): mostly wood
- Tubes:
- Other:

### Sample Collected Using
- Stratified sediment: Yes No
- Van Veen
- Eckman
- Sheen Present: Yes No
- Ponor
- Shovel

### Photo Numbers' (see Photo Log for descriptions)
- Sediment in Grab:
- Homogenized Sample:
- Other:

### Sediment (SE) Sample ID:
<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Duplicate SE Sample ID:
<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA/NPS/CCT):
<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Pore Water (PW) Sample ID:
<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Sample Lead Initials**: AC  
**Date**: 10/6/13  
**Field Supervisor Initials**: KH  
**Date**: 10/6/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>4-C2</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>9:00</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>28.4'</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>8</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

**Sample Location:**  
EASTING: 418313.68  
NORTHING: 5392009.61  
(NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**
Cumulative Percent of Porewater Syringe filled: ___%  
Accepted  Rejected

pH of Sediment in Sampler: ___ su  
Description: ___

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Description:</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:** Mostly Worn  
Debris (twigs/leaves): Other:

**Sample Collected Using**

- Stratified sediment: Yes  No
- Sheen Present: Yes  No
- Sediment in Grab: ___  
- Homogenized Sample: ___  
- Other: ___

**Photo Number's**

- Sediment (SE) Sample ID: ___  
- Time:  
- # Containers:  
- Volume:  
- %
- Duplicate SE Sample ID: ___  
- Time:  
- # Containers:  
- Volume:  
- %
- Split SE Samples (EPANPS/CCT): ___  
- # Containers:  
- Volume:  
- %
- Pore Water (PW) Sample ID: ___  
- Time:  
- # Containers:  
- Volume:  
- %

**Sample Lead Initials:**  
Date: 10/5/13  
Field Supervisor Initials:  
Date: 10/9/13

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bicassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>4-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>29.4'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>0955</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 418306.16 (NAD_83_UTM_Zone_11_North)</td>
<td>NORTING: 439199.123</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES NO**
2. Overlying water present? **YES NO**
3. Overlying water excessively turbid? **YES NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES NO**
7. Sample is: **Accepted Rejected**

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  Accepted Rejected

pH of Sediment in Sampler: 6.69

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
<th>Color</th>
<th>Description</th>
<th>Redox Boundary</th>
<th>Odor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td>5Y 3/12</td>
<td>Dark Olive Gray</td>
<td>Present? No</td>
<td>None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

**Amphipods:** Some organic

**Debris (twigs/leaves):** Other

**Sample Collected Using**

Van Veen
Eckman
Ponar
Shovel

**Photo Numbers 's**

| Sediment in Grab: | 406 | Time: | 6:47 |
| Homogenized Sample: | 110-0320 | Time: | 11:47 |

**Sediment (SE) Sample ID:** SE-4-C2 Time: 11:45 # Containers: 4/1 Volume: 100/80 %

**Duplicate SE Sample ID:** __________ Time: __________ # Containers: __________ Volume: __________ %

**Split SE Samples (EPA/NPS/CCT):** __________ Time: __________ # Containers: __________ Volume: __________ %

**Pore Water (PW) Sample ID:** PW-4-C2 Time: 11:28 # Containers: 3 Volume: 100 %

Sample Lead Initials: AC  Date: 10/5/13

Field Supervisor Initials: NOH  Date: 10/8/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189  Station Identifier: 4-C2
Anchor Point (max 3) 1 2 3 Water Depth (feet): 33.3
Drop # 1 2 3 Cast Time: 09:12
Angle ( < 5\textdegree max) Yes No sampler penetration (inches): 28.9
Cultural Resources Observed? No Yes
Sample Location: 
EASTING: 418315.15 NAD 83 UTM Zone 11 North
NORTING: 5391982.25

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of
channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle,
filling upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ______% Accepted Rejected
pH of Sediment in Sampler: NR Description:

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
<th>Redox Boundary: Present? Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Gravel</td>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves): Tubes: Macrophytes:
Stratified sediment: Yes No
Sheen Present: Yes No
Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Homogenized Sample: Yes No
Sediment in Grab: Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: 10/11/13 10/11/13 D24
Field Supervisor Initials: AN Date: 10/13/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
IPW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 38315189</th>
<th>Station Identifier: 4-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 28.8</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time c945</td>
<td>Sampler Penetration (inches): n8-911</td>
</tr>
<tr>
<td>Angle (&lt; 5 max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 418304.84 [NAD_83_UTM_Zone_11_North] NORTHING: 539200 1.62</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment n Sampler: NR su Description: ____________

Sediment Characteristics
Type:  % Silt (<=1/16 mm) Color: Munsell Color Chart #: Description: ____________
% Sand (1/16 - 2 mm) Redox Boundary: Present? Yes No
% Gravel ____________
% Cobbles ____________
% Silica Glass ____________

Amphipods: mostly wooden
Debris(woody, etc.): tubes: other: Macrophytes: ____________

Sample Collected Using
Stratified sediment: Yes No
Sheen Present: Yes No
Van Veen Eckman Ponar Shovel
Sediment in Grab: 028 Time: 0917
Homogenized Sample: Time: Other: Time:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 10/5/13 Field Supervisor Initials: Date: 10/6/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>33310189</th>
</tr>
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<tbody>
<tr>
<td>Station Identifier:</td>
<td>4-C2</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>27.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>09:18</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>8-9</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 418348.68 NAD_83_UTM_Zone_11_North, NORTING: 5392621.42</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled: _____%

pH of Sediment in Sampler: NA su

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>% Silt (&lt;1/16 mm)</td>
</tr>
<tr>
<td></td>
<td>% Sand (1/16 - 2 mm)</td>
</tr>
<tr>
<td></td>
<td>% Gravel</td>
</tr>
<tr>
<td></td>
<td>% Cobbles</td>
</tr>
<tr>
<td></td>
<td>% silica Glass</td>
</tr>
<tr>
<td>Color:</td>
<td>Munsell Color Chart #:</td>
</tr>
<tr>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

**Amphipods:** mostly weed

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

**Sample Collected Using**

| Van Veen, Eckman, Ponor, Shovel |

**Photo Numbers' s**

(see Photo Log for descriptions)

| Sediment in Grab: | 839 | Time: 09:21 |
| Homogenized Sample: |
| Other: |

| Sediment (SE) Sample ID: | Time: | # Containers: | Volume: % |
| Duplicate SE Sample ID: | Time: | # Containers: | Volume: % |
| Split SE Samples (EPA/NPS/CCT): | # Containers: | Volume: % |
| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: % |

**Sample Lead Initials:**

<table>
<thead>
<tr>
<th>Date: 10/5/13</th>
</tr>
</thead>
</table>

| Field Supervisor Initials: | 2HN |
| Date: 10/7/13 |

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310169</th>
<th>Station Identifier:</th>
<th>4-12</th>
</tr>
</thead>
</table>

**Anchor Point (max 3)**

1 2 3

**Drop #**

1 2 3 Cast Time: 0922

**Angle (< 5°max)**

Yes No

Water Depth (feet): 28.7

Sampler Penetration (inches): 16

Cultural Resources Observed? Yes No

**Sample Location:**

EASTING: 418373.93 (NAD 83 UTM Zone 11 North) NORTHING: 5392015.08

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

---

**Porewater**

Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: NA

---

**Sediment Characteristics**

Type: % Silt (%<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Gravel % Cobbles % Cobble % Silica Glass:

Color: Munsell Color Chart #:

Redox Boundary: Present? Yes No

Odor: None

Hydrogen sulfide

---

**Amphipods:**

**Debris (twigs/leaves):**

**Sample Collected Using:**

Van Veen Eckman Ponar

**Sediment in Grab:**

Homogenized Sample:

**Other:**

---

**Photo Numbers 's**

(see Photo Log for descriptions)

513 5923

---

**Sediment (SE) Sample ID:**

Time: # Containers: Volume: %

**Duplicate SE Sample ID:**

Time: # Containers: Volume: %

**Split SE Samples (EPA/NPS/CCT):**

Time: # Containers: Volume: %

**Pore Water (PW) Sample ID:**

Time: # Containers: Volume: %

---

Sample Lead Initials: 10/1/13

Field Supervisor Initials: 10/1/13

---

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

---

URS
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>4-c2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>30.10'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>09:27</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>[NAD_83_UTM_Zone_11_North]</th>
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</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>418339.85</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>539199.00</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?  YES  NO
2. Overlying water present?  YES  NO
3. Overlying water excessively turbid?  YES  NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  YES  NO
5. Desired penetration depth (4 to 6 inches) achieved?  YES  NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  YES  NO
7. Sample is:  Accepted  Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___%
- Accepted  Rejected

- pH of Sediment in Sampler:  N/A

### Sediment Characteristics
- Type:  % Silt (<1/16 mm)
- % Sand (1/16 - 2 mm)
- % Gravel
- % Cobbles
- % Silica Glass:

- Color:  Munsell Color Chart #:
  - Description:

- Redox Boundary:  
  - Present?: Yes  No
  - If present -- Depth Below Sediment Surface (inches):

- Odor:  None  Hydrogen sulfide

### Amphipods:
- Mostly wood

### Tubes:
- Other:

### Macrophytes:

#### Sample Collected Using
- Van Veen
- Eckman
- Ponar
- Shovel
- Sediment in Grab: 767
- Homogenized Sample: Time:
- Other:

#### Photo Numbers "s"
(see Photo Log for descriptions)
- Sediment (SE) Sample ID:
- Duplicate SE Sample ID:
- Split SE Samples (EPA/NPS/CCT):
- Pore Water (PW) Sample ID:

### Sample Lead Initials:  

### Field Supervisor Initials:  

### Date: 10/6/13  10/7/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 38310189
Station Identifier: 4-1-2

Anchor Point (max 3) 1 2 3
Water Depth (feet): 28.8

Drop # 1 2 3 Cast Time 29:31
Sampler Penetration (inches): 29

Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 418,344.74
NORTHING: 539,2008.86

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is:
   Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: __________

Sediment Characteristics
Type:
% Silt (<=1/16 mm) __________
% Sand (1/16 - 2 mm) __________
% Gravel __________
% Cobbles __________
% Silica Glass __________

Color: Munsell Color Chart #:
Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None
Hydrogen sulfide

Amphipods: mostly wood
Tubes: Other:

Macrophytes:

Sample Collected Using
Stratified sediment: Yes No
Van Veen
Eckman
Sheen Present: Yes No
Ponar
Homogenized Sample
Shovel
Other:

Sample ID: Time: # Containers: Volume: %
SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: Date: 10/7/13
Field Supervisor Initials: Date: 10/8/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
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<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>846</td>
<td>9:02</td>
<td>SM</td>
<td></td>
<td>Rejected Sample</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td>Wood debris, grab #2</td>
</tr>
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<td>SM</td>
<td>Accepted at 10/7/13</td>
<td>Rejected Sample</td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td>Wood debris, grab #3</td>
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<td>701</td>
<td>9:13</td>
<td>SM</td>
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<td>Rejected Sample</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Wood debris, grab #4</td>
</tr>
<tr>
<td>028</td>
<td>9:17</td>
<td>SM</td>
<td></td>
<td>Rejected Sample</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wood debris, grab #5</td>
</tr>
<tr>
<td>539</td>
<td>9:31</td>
<td>SM</td>
<td></td>
<td>Rejected Sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wood debris, grab #6</td>
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<tr>
<td>513</td>
<td>9:23</td>
<td>SM</td>
<td></td>
<td>Rejected Sample</td>
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<td></td>
<td></td>
<td>Wood debris, grab #7</td>
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<tr>
<td>964</td>
<td>9:28</td>
<td>SM</td>
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<td>Rejected Sample</td>
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<td></td>
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<td></td>
<td></td>
<td>Wood debris, grab #8</td>
</tr>
<tr>
<td>341</td>
<td>9:32</td>
<td>SM</td>
<td></td>
<td>Rejected Sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wood debris, grab #9</td>
</tr>
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<td>Description</td>
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<tr>
<td>642</td>
<td>9:34</td>
<td>SM</td>
<td>North</td>
<td>upstream of site</td>
</tr>
<tr>
<td>837</td>
<td>9:34</td>
<td>SM</td>
<td>East</td>
<td>lost bank</td>
</tr>
<tr>
<td>938</td>
<td>9:34</td>
<td>SM</td>
<td>West</td>
<td>right bank (Kettle River Bridge)</td>
</tr>
<tr>
<td>707</td>
<td>9:34</td>
<td></td>
<td>South</td>
<td>downstream of site (115 ft)</td>
</tr>
<tr>
<td>343</td>
<td>9:34</td>
<td>SM</td>
<td>Station ID</td>
<td>4-C2</td>
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<tr>
<td>166</td>
<td>9:45</td>
<td>SM</td>
<td></td>
<td>SE sample placed in silt</td>
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<tr>
<td>110-0320</td>
<td>11:44</td>
<td>BM</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>homogenized sample 4-C2</td>
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</table>
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10/5/13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>Rapp/Navo/McDaniel</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>C. Levine</td>
</tr>
<tr>
<td>River Stage:</td>
<td>1285.1</td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td>1285.1</td>
</tr>
<tr>
<td>Boat Position:</td>
<td>Powered</td>
</tr>
<tr>
<td>River Mile:</td>
<td>70.6</td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>No</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>109-0308</td>
</tr>
<tr>
<td>Time:</td>
<td>14:24</td>
</tr>
<tr>
<td>Camera ID:</td>
<td>TA-2 pntax</td>
</tr>
</tbody>
</table>

C.R. - cultural resources
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>4-C3</td>
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<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>6</td>
</tr>
<tr>
<td>Cast Time</td>
<td>11:25</td>
</tr>
<tr>
<td>Angle (&lt;5' max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample Penetration (inches):</td>
<td></td>
</tr>
<tr>
<td>Sampler overfilled or sediment pressed against top of sampler?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Overlying water present?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Overlying water excessively turbid?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Desired penetration depth (4 to 6 inches) achieved?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample is:</td>
<td>Accepted Rejected</td>
</tr>
<tr>
<td>Porewater Cumulative Percent of Porewater Syringe filled:</td>
<td></td>
</tr>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>7.82 su</td>
</tr>
<tr>
<td>Sediment Characteristics</td>
<td></td>
</tr>
<tr>
<td>Type:</td>
<td>% Silt (&lt;1/16 mm)</td>
</tr>
<tr>
<td></td>
<td>% Sand (1/16 - 2 mm)</td>
</tr>
<tr>
<td></td>
<td>% Gravel</td>
</tr>
<tr>
<td></td>
<td>% Cobbles</td>
</tr>
<tr>
<td></td>
<td>% Silica Glass:</td>
</tr>
<tr>
<td>Color: Munsell Color Chart #:</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
</tr>
<tr>
<td>Redox Boundary Present? If present -- Depth Below Sediment Surface (inches):</td>
<td>Yes No</td>
</tr>
<tr>
<td>Odor:</td>
<td>None</td>
</tr>
<tr>
<td>Other:</td>
<td>Hydrogen sulfide</td>
</tr>
<tr>
<td>Amphipods:</td>
<td></td>
</tr>
<tr>
<td>Tubes:</td>
<td></td>
</tr>
<tr>
<td>Macrophytes:</td>
<td></td>
</tr>
<tr>
<td>Debris (twigs/leaves):</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Stratified sediment: Yes No</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td></td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td></td>
</tr>
</tbody>
</table>

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: [Signature]
Date: 10/5/13
Field Supervisor Initials: [Signature]
Date: 1/9/13
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:**  
**Anchor Point (max 3):** 1 2 3  
**Drop #:** 1 2 3  
**Cast Time:**  
**Easting:**  
**NORTHING:**  
**Water Depth (feet):** 45.3  
**Sampler Penetration (inches):** 9

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

<table>
<thead>
<tr>
<th>Sample Location: (NAD_83_UTM_Zone_11_North)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 419431 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORTHING: 5390226.47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Porewater

- Cumulative Percent of Porewater Syringe filled: __%  
- Accepted  
- Rejected

- pH of Sediment in Sampler: 7.93  
- Description: __

### Sediment Characteristics

- **Type:**  
  - % Silt (<1/16 mm): __0__  
  - % Sand (1/16 - 2 mm): __40__  
  - % Gravel: __  
  - % Cobbles: __  
  - % Silica Glass: __  
- **Color:** Munsell Color Chart #: 2.5Y 4/2  
- **Description:**  
  - Redox Boundary:  
    - If present -- Depth Below Sediment Surface (inches): __  
  - Odor:  
    - None  
    - Hydrogen sulfide  
    - Other: __

### Amphipods:

- Debris (twigs/leaves): __  
- Other: __

### Sample Collected Using:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Photo Numbers:

- Sediment in Grab: __1443__  
- Homogenized Sample: __1528__  
- Other: __104-457-086__

### Sediment (SE) Sample ID: SE-4-C3  
- Time: 1532  
- # Containers: 1/1  
- Volume: 100/80 %

### Duplicate SE Sample ID:  
- Time: __  
- # Containers: __  
- Volume: __%

### Split SE Samples (EPA/NPS/CCT):  
- # Containers: __  
- Volume: __%

### Pore Water (PW) Sample ID: PW-4-C3  
- Time: 1520  
- # Containers: 3  
- Volume: 100 %

**Sample Lead Initials:** __  
**Date:** 10/5/13  
**Field Supervisor Initials:** __  
**Date:** 10/4/13  

---

**Sample ID Format:**  
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
### Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

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<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Camera Serial #</th>
<th>Station Identifier</th>
<th>Vessel</th>
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<tbody>
<tr>
<td>109-0308</td>
<td>14:24</td>
<td>Upstream of site</td>
<td>TA-2</td>
<td>4-C3</td>
<td>Tahoma</td>
</tr>
<tr>
<td>109-0309</td>
<td>14:25</td>
<td>Left bank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109-0310</td>
<td>14:25</td>
<td>Right bank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109-0311</td>
<td>14:25</td>
<td>Downstream of site</td>
<td></td>
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<td></td>
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<tr>
<td>109-0312</td>
<td>14:29</td>
<td>SE sample grab #1</td>
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<tr>
<td>109-0313</td>
<td>14:30</td>
<td>SE scoop grab #1</td>
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<td>109-0315</td>
<td>14:32</td>
<td>Site ID 4-C3</td>
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<tr>
<td>109-0316</td>
<td>14:43</td>
<td>SE sample grab #2</td>
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Field Supervisor Initials: [Signature] Date: 10/6/13
Sample Lead Initials: [Signature] Date: 10/5/13
<table>
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<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>109-0317</td>
<td>4:14:44</td>
<td>Bm</td>
<td></td>
<td>SE Scoop grab #2</td>
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<tr>
<td>109-0318</td>
<td>15:38</td>
<td>Bm</td>
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<td>SE homogenized Sample 4-C3</td>
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</tr>
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</table>

Field Supervisor Initials:  
Sample Lead Initials:  
Date: 10/5/13  
Date: 10/5/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>35310189</th>
<th>Station Identifier:</th>
<th>4-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10-4-13</td>
<td>Vessel:</td>
<td>Tacoma</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>Rapp, Musgrove, McDannell</td>
<td>Vessel Crew:</td>
<td>Tadeau, Baratta, Perley</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>C. Iviein</td>
<td>C.R. Observer:</td>
<td>Depuyet</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>1227</td>
<td>Departure Time:</td>
<td>1410</td>
</tr>
</tbody>
</table>

River Stage:  
- Water Surface Elev. (ft): 1284.9  
- Water Surface Elevation Source: Grand Coulee Dam

Weather Conditions Upon Arrival  
- Temp (°F): 59  
- Wind (mph): calm <5  
- Clouds/Precipitation: mostly clean

Site Information:  
- Boat Position: Powered, Anchored  
- River Mile: 705  
- River Current: Swift, Eddie, Calm, Ripple  
- Boat Traffic: Support boats  
- Notable shore surface features:  
  - rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.

<table>
<thead>
<tr>
<th>Sample Location Photo IDs:</th>
<th>Camera ID: 74-2 pentax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo ID 108-0260</td>
<td>Time: 1229</td>
</tr>
<tr>
<td>Photo ID 108-0261</td>
<td>Time: 1230</td>
</tr>
<tr>
<td>Photo ID 108-0262</td>
<td>Time: 1230</td>
</tr>
</tbody>
</table>

C.R. - cultural resources

Field Supervisor Initials:  
- Date: 10/4/13

Sample Lead Initials:  
- Date: 10-4-13

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 4-C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 52.4'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1230</td>
<td>Sampler Penetration (inches): 10'</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 419067.85 NAD_83_UTM_Zone_11_North</td>
<td>NORTHING: 538880.3803 80</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 100% Accepted Rejected

pH of Sediment in Sampler: 7.20 su Description:

Sediment Characteristics
Type: % Silt 100 (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass

Color: Munsell Color Chart # 5Y 2.5/1
Description: Black

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Other: Hydrogen sulfide

Amphipods: Debris (twigs/seaves): Other: Sample Collected Using
Van Veen

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: Date 10-4-13 Field Supervisor Initials: Date 10/6/13
### Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 4-C4</th>
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<tbody>
<tr>
<td>Date: 10-4-13</td>
<td>Vessel: Tahoma</td>
</tr>
<tr>
<td>Camera Serial #: TA-2 penta</td>
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<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>108-0259</td>
<td>12:28</td>
<td>BM</td>
<td>Site 4-C4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108-0260</td>
<td>12:29</td>
<td>BM</td>
<td>Upstream of</td>
<td>Sample site</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108-0261</td>
<td>12:30</td>
<td>BM</td>
<td>East</td>
<td>Left Bank</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108-0262</td>
<td>12:32</td>
<td>BM</td>
<td>West</td>
<td>Right Bank</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108-0263</td>
<td>12:33</td>
<td>BM</td>
<td>South</td>
<td>Downstream of Sample site</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108-0264</td>
<td>12:34</td>
<td>BM</td>
<td></td>
<td>SE Sample Grab Sample #1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>108-0265</td>
<td>12:35</td>
<td>BM</td>
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<td>SE Sample Scoop Grab #1 Photo 1</td>
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</tr>
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<td>108-0266</td>
<td>12:35</td>
<td>BM</td>
<td></td>
<td>SE Sample Scoop Grab #1 Photo 2</td>
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Field Supervisor Initials:  
Sample Lead Initials:  
Date: 10/6/13  
Date: 10-4-13  

URS
## Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
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<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>108-0267</td>
<td>13:42</td>
<td><em>Bm</em></td>
<td></td>
<td><strong>SE homogenized Sample grab #1</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tr>
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</table>

<table>
<thead>
<tr>
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<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
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</table>

Field Supervisor Initials:  
Sample Lead Initials:  

 Urs
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 10-4-13
Station Identifier: 4-C5

Sampling Crew: Rapp/Marziani/Devine
Vessel: Tahoma
EPA Observer: C. Irvine
Vessel Crew: Tansey/Robber/Isley
Arrival Time: 1414
C.R. Observer: Duvaney
Departure Time: 1552

River Stage:
Water Surface Elev. (ft): 1284.90
Water Surface Elevation Source: Coulee Dam

Weather Conditions Upon Arrival
Temp (°F): 67°
Wind (mph): calm <5
Clouds/Precipitation: mostly clear

Site Information:

Boat Position: (Powered) (Anchored)

River Mile: 104

Water Surface: (Calm) (Small Waves) (Choppy)

Surface Vegetation Present: Yes ( ) No ( )
Was Vegetation Removed: Yes ( ) No ( )

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
<th>Photo ID</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-0269</td>
<td>1416</td>
<td>TA-2 pentax</td>
<td>108-0270</td>
<td>1416</td>
</tr>
<tr>
<td>108-0271</td>
<td>1416</td>
<td></td>
<td>108-0272</td>
<td>1416</td>
</tr>
</tbody>
</table>

General Notes:

C.R. - cultural resources
Field Supervisor Initials: 104
Date: 10/6/13
Sample Lead Initials: [signature]
Date: 10-4-13
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 33310189</th>
<th>Station Identifier: 4-65</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 59.8'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1415</td>
<td>Sampler Penetration (inches): 12''</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 420013.10</td>
<td>NORTING: 538743.283</td>
</tr>
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</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

### Porewater:

- Cumulative Percent of Porewater Syringe filled: 100% **Accepted**
- pH of Sediment in Sampler: 7.23
- Description: su

### Sediment Characteristics:

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Color: Munsell Color Chart #: 5Y 2.5/1
- Description: Black
- Redox Boundary: If present -- Depth Below Sediment Surface (inches):
- Odor: None
- Hydrogen sulfide

### Amphipods:

- Debris (twigs/leaves):
- Other:

### Macrophytes:

- Sample Collected Using
- Van Veen
- Eckman
- Ponor
- Shovel

### Photo Numbers 's

- Sediment in Grab: 108-0272 Time: 1920
- Homogenized Sample: 108-0028 Time: 1915
- Other: 108-0274 Spec Time: 1920

### Sample Log Initials: JLL Date: 10-4-13

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project: 36310189
Station Identifier: 4-C5
Vessel: Tahoma

Date: 10/4/13
Camera Serial #: TA-2

<table>
<thead>
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<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>108-0268</td>
<td>14:15</td>
<td>Rm</td>
<td>North</td>
<td>upstream of site</td>
</tr>
<tr>
<td>108-0269</td>
<td>14:16</td>
<td>Bm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>108-0270</td>
<td>14:16</td>
<td>Bm</td>
<td>East</td>
<td>left bank</td>
</tr>
<tr>
<td>108-0271</td>
<td>14:16</td>
<td>Bm</td>
<td>West</td>
<td>right bank</td>
</tr>
<tr>
<td>09-0272</td>
<td>14:16</td>
<td>Bm</td>
<td>South</td>
<td>downstream of site</td>
</tr>
<tr>
<td>108-0273</td>
<td>14:20</td>
<td>Bm</td>
<td></td>
<td>SF sample grab #1</td>
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<tr>
<td>108-0274</td>
<td>14:20</td>
<td>Bm</td>
<td></td>
<td>SE Scoop grab #1</td>
</tr>
<tr>
<td>108-0275</td>
<td>15:15</td>
<td>Bm</td>
<td></td>
<td>SE homogenized Sample grab #1</td>
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Field Supervisor Initial: 4
Date: 10/6/13
Sample Lead Initial: J
Date: 10-4-13
### Sample Location Form
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
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<tbody>
<tr>
<td>Date:</td>
<td>10-5-13</td>
</tr>
<tr>
<td>Station Identifier:</td>
<td>4-C6</td>
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<tr>
<td>Vessel:</td>
<td>Tahoma</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>Rapp/Muray/McDame</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>C. Irvine</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>0831</td>
</tr>
<tr>
<td>Vessel Crew:</td>
<td>Takedown/Scant Adk/Boyle</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>10-6-13 1047</td>
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<tr>
<td>River Stage:</td>
<td>Water Surface Elev. (ft): 1285.10</td>
</tr>
<tr>
<td>Weather Conditions Upon Arrival</td>
<td>Temp (°F): 51 F</td>
</tr>
<tr>
<td>Wind (mph):</td>
<td>calm</td>
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<tr>
<td>Clouds/Precipitation:</td>
<td>mostly cloudy</td>
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<td>Site Information:</td>
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<tr>
<td>Boat Position:</td>
<td>(Powered)</td>
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<tr>
<td>River Mile:</td>
<td>703</td>
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<tr>
<td>Water Surface:</td>
<td>(Calm)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>No</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
</tr>
<tr>
<td>Camera ID:</td>
<td>TA-2 pentax</td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td></td>
</tr>
<tr>
<td>Photo ID:</td>
<td>169-0277</td>
</tr>
<tr>
<td>Time:</td>
<td>0829</td>
</tr>
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<td>Photo ID:</td>
<td>169-0278</td>
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<tr>
<td>Time:</td>
<td>0829</td>
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<td>General Notes:</td>
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</table>

**C.R. - cultural resources**

Field Supervisor Initials | OH | Date: 10/6/13
Sample Lead Initials | JH | Date: 10-5-13
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>4-C4</td>
</tr>
</tbody>
</table>

Anchor Point (max 3) 1 2 3  
Water Depth (feet): 45.0

Drop # 1 2 3 Cast Time 0831  
Sampler Penetration (inches):

Angle (< 5° max) Yes No  
Cultural Resources Observed? No Yes

Sample Location: (NAD 83 UTM Zone_11 North)  
EASTING: 419940.36 NORTHING: 5386157.84

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: 7.83 su Description:

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1/16 mm)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
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</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>% Gravel</th>
<th>Redox Boundary:</th>
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<tbody>
<tr>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
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<tr>
<td></td>
<td>No</td>
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<table>
<thead>
<tr>
<th>% Cobbles</th>
<th>Odor:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
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<table>
<thead>
<tr>
<th>% Silica Glass</th>
<th>Other:</th>
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<tbody>
<tr>
<td></td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

Amphipods: Debris (twigs/leaves):
Sample Collected Using:
Sample ID Format:
Stratified sediment: Yes No
Sheen Present: Yes No
Van Veen Eckman
Ponar Shovel
Sediment in Grab: 169-6285
Homogenized Sample: 169-6286
Other: 169-6287

Photo Numbers:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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<th>Split SE Samples (EPA/NPS/CCT):</th>
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<th>Volume:</th>
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</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
</tbody>
</table>

Sample Lead Initials A Date: 10/5/13 Field Supervisor Initials: AH Date: 10/16/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Location:</td>
<td>NAD 83 UTM Zone 11 North</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>45.1</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>7</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Porewater</th>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>7.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
</tr>
<tr>
<td>% Cobbles</td>
</tr>
<tr>
<td>% Silica Glass:</td>
</tr>
<tr>
<td>Color:</td>
</tr>
<tr>
<td>Description:</td>
</tr>
<tr>
<td>Redox Boundary:</td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>Odor:</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sample Collected Using</td>
<td>Van Veen</td>
<td>Eckman</td>
<td>Ponar</td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td>Time:</td>
<td>0.847</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td>Time:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: | Date: 10-5-13 |
Field Supervisor Initials: | Date: 10/6/13 |

Sample ID Format:|
SE-1-C2: Sediment at Station 1-C2 (Chemistry only) |
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry) |
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 4-C

Anchor Point (max 3) 1 2 3
Water Depth (feet): 45.41
Drop # 1 2 3 Cast Time 0857
Sampler Penetration (inches): 9
Angle (< 5°max) Yes No
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 419938.66
NORTHING: 386153.53

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 100%

pH of Sediment in Sampler: 8.08

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #: 5Y 3/2</td>
<td>Dark Olive Gray</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary: Present?</td>
<td></td>
<td>Yes No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td>None</td>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

Amphipods: Debris (twigs/leaves):

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sheen Present: Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Collected Using</td>
<td>Photo Numbers’s</td>
</tr>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Time:</td>
</tr>
<tr>
<td>Other</td>
<td>Time:</td>
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</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID: SE-4-C Time: 10:21</th>
<th># Containers: 6/1/21 Volume: 100/80 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td># Containers:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT): SE-4-C</td>
<td># Containers: 1 Volume: 80 %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID: PW-4-C Time: 10:04</td>
<td># Containers: 5 Volume: 100 %</td>
</tr>
</tbody>
</table>

Sample Lead Initials: Date: 10-5-13
Field Supervisor Initials: Date: 10-5-13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
# Upper Columbia River RI/FS
## 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>109-0276</td>
<td>8:28</td>
<td>Station ID 4-C6</td>
</tr>
<tr>
<td>109-0277</td>
<td>8:34</td>
<td>Upstream of Station</td>
</tr>
<tr>
<td>109-0278</td>
<td>8:39</td>
<td>Left bank</td>
</tr>
<tr>
<td>109-0279</td>
<td>8:49</td>
<td>Right bank</td>
</tr>
<tr>
<td>109-0280</td>
<td>8:59</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>109-0281</td>
<td>8:35</td>
<td>SE Sample grab #1</td>
</tr>
<tr>
<td>109-0282</td>
<td>8:36</td>
<td>SE Scoop grab #1</td>
</tr>
<tr>
<td>109-0283</td>
<td>8:47</td>
<td>SE Sample grab #2</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: Df Date: 10/6/13
Sample Lead Initials: JR Date: 4/5/13
### Photo Log

#### Upper Columbia River RI/FS

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>10/5/13</td>
</tr>
<tr>
<td>Camera Serial #:</td>
<td>TA-2 Pentax</td>
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</table>

<table>
<thead>
<tr>
<th>Station Identifier:</th>
<th>4-C-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel:</td>
<td>Tacoma</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
<th>Photographer:</th>
<th>Photo Orientation:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>119-0285</td>
<td>8:48</td>
<td>BM</td>
<td>SF Scoop</td>
<td>grab #2</td>
</tr>
<tr>
<td>119-0287</td>
<td>8:59</td>
<td>BM</td>
<td>SF Sample</td>
<td></td>
</tr>
<tr>
<td>109-0288</td>
<td>8:59</td>
<td>BM</td>
<td>SF Scoop</td>
<td>grab #2</td>
</tr>
<tr>
<td>109-0289</td>
<td>10:18</td>
<td>BM</td>
<td>homogenized sample</td>
<td>grab #3 SF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
<th>Photographer:</th>
<th>Photo Orientation:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Field Supervisor Initials**: JN  
**Date**: 10/6/13  
**Sample Lead Initials**: JK  
**Date**: 10/5/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310180  
Date: 10/24/13  
Vessel: MAZAMA  
Vessel Crew: TRUDEAU, ROLING  
Station Identifier: 4-R1  
EPA Observer: LOPEZ  
C.R. Observer: WHITE (NP) SQUETMIN  
Arrival Time: 10:49  
Departure Time: 11:21  
Weather Conditions Upon Arrival:
- Temp (°F): 50°  
- Wind (mph): < 5
- Clouds/Precipitation: Sunny

River Mile:
- Water Surface: 711  
- River Surface: (Calm)

Site Information:
- Boat Position: (Powered) (Anchored)  
- River Current: (Swift) (Eddy) (Calm) (Ripple)  
- Boat Traffic: Pumpkin, Dory  
- Water Surface Vegetation Present: Yes  
- Water Vegetation Removed: Yes

Notable shore surface features:
- Houses to east, gentle east slope while outcrops to west, bluffs
- Station Mid Lake

Sample Location Photo IDs:  
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-0823</td>
<td>10:49</td>
</tr>
<tr>
<td>123-0825</td>
<td>10:49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-0824</td>
<td>10:49</td>
</tr>
<tr>
<td>123-0826</td>
<td>10:49</td>
</tr>
</tbody>
</table>

General Notes:  
- Good grab on second drop (API Drop2)  
- Picked out the minor gravels during homogenization

- SAMPLE COLLECTED AT THIS LOCATION.

- pore water collected using white airstone.

C.R - cultural resources

Field Supervisor: DAH  
Date: 10/24/13  
Sample Lead Initials: MW  
Date: 10/24/13
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>4-R1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>90.5'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>1:52</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Penetration (inches):</td>
<td>S'1'</td>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
</tbody>
</table>

## Sample Location:

- **EASTING:** 42 4347.66  
- **NORTHING:** 547 5391861 73  
- **NAD 83 UTM Zone 11 North**

## Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**
2. Overlying water present?  
   - **YES**  
   - **NO**
3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**  
   - **NO**
5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**
7. Sample is:  
   - Accepted  
   - Rejected

## Porewater

- **Cumulative Percent of Porewater Syringe filled:**  
  - Accepted  
  - Rejected
- **pH of Sediment in Sampler:**  
  - Description:
- **Color:**  
  - Munsell Color Chart #:
  - Description:
- **Redox Boundary:**  
  - Present? Yes  
  - No
  - If present -- Depth Below Sediment Surface (inches):
- **Odor:**  
  - None  
  - Hydrogen sulfide

## Sediment Characteristics

- **Type:**  
  - % Silt: 1 (<1/16 mm)
  - % Sand: 99 (1/16 - 2 mm)
  - % Gravel
  - % Cobbles
  - % Silica Glass: 75% of sand above
- **Color:**  
  - Munsell Color Chart #:
  - Description:
- **Redox Boundary:**  
  - Present? Yes  
  - No
  - If present -- Depth Below Sediment Surface (inches):
- **Odor:**  
  - None  
  - Hydrogen sulfide

## Amphipods:

- Debris/twigs/leaves:
- Other:

## Tubes:

## Macrophytes:

### Sample Collected Using

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**
- **Other:**

### Photo Numbers’ s (see Photo Log for descriptions)

- **Sediment in Grab:**  
  - Time: 
  - # Containers: 
  - Volume: 
  - %
- **Homogenized Sample:**  
  - Time: 
  - # Containers: 
  - Volume: 
  - %
- **Split SE Samples (EPA/NPS/CCT):**  
  - Time: 
  - # Containers: 
  - Volume: 
  - %
- **Pore Water (PW) Sample ID:**  
  - Time: 
  - # Containers: 
  - Volume: 
  - %

## Sample Lead Initials: **MW**  
**Date:** 10/24/13  
**Field Supervisor Initials:** **OH**  
**Date:** 10/24/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 4R-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 84.5</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1105</td>
<td>Sampler Penetration (inches): 5</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: 424,340.05</td>
<td>NAD 83 UTM Zone 11 North</td>
</tr>
<tr>
<td>EASTING: 539,4268.37</td>
<td>NORTTHING: 539,4268.37</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

#### Porewater
Cumulative Percent of Porewater Syringe filled: 100%

pH of Sediment in Sampler: No overlying water

**Description:** white airstone

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #: 10YR 2/11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>100%</td>
<td></td>
<td>Description: BLACK</td>
</tr>
<tr>
<td>% Sand</td>
<td>2000</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Redox Boundary:** If present -- Depth Below

**Sediment Surface (inches):**

**Odor:** None

**Other:** Hydrogen sulfide

#### Amphipods:
Debris (twigs/leaves):

#### Sample Collected Using
<table>
<thead>
<tr>
<th>Sample Collecting</th>
<th>Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>123-0575 Time: 1111</td>
</tr>
<tr>
<td>Ponor</td>
<td>Shovel</td>
<td>1285</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td>1285</td>
</tr>
</tbody>
</table>

**Sediment in Grab:**

**Homogenized Sample:**

**Other:**

#### Sediment (SE) Sample ID: SE-4-R1 Time: 12026 # Containers: 5 Volume: 4,100 1-80%

#### Duplicate SE Sample ID: # Containers: Volume: %

#### Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %

#### Pore Water (PW) Sample ID: PW-4-R1 Time: 1153 # Containers: 3 Volume: 100 %

**Sample Lead Initials:** NW
**Date:** 10/24/13

**Field Supervisor Initials:** AH
**Date:** 10/24/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pure Water at Station 1-B2
### Photo Log
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Date</th>
<th>Initials</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-0822</td>
<td>1003</td>
<td>Station ID 4-R1</td>
<td>10/24/13</td>
<td>MV</td>
<td>MV</td>
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<tr>
<td>123-0823</td>
<td>1049</td>
<td>North from 4-R1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Vessel:</strong> MAZIMA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123-0824</td>
<td>1049</td>
<td>East from 4-R1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123-0825</td>
<td>1049</td>
<td>South from 4-R1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123-0826</td>
<td>1049</td>
<td>West from 4-R1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123-0827</td>
<td>1054</td>
<td>Sediment in grab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123-0828</td>
<td>1111</td>
<td>Sediment in API Drop 2</td>
<td></td>
<td></td>
<td></td>
</tr>
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**URS**
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-0830</td>
<td>11:30</td>
<td>Dewater Collection</td>
<td>123-0831</td>
<td>12:05</td>
<td>Homogenized Sediment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: OK  Date: 10/24/13
Sample Lead Initials: MW  Date: 10/24/13
### Sample Location Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 4-R5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 10/8/13</td>
<td>Vessel: Taberna</td>
</tr>
<tr>
<td>Sampling Crew: Rapp/McCaw/McDanie</td>
<td>Vessel Crew: Tocleau/Shefter/Colins</td>
</tr>
<tr>
<td>EPA Observer: Irvine</td>
<td></td>
</tr>
<tr>
<td>Arrival Time: 0832</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft): 1285.6</td>
<td>Water Surface Elevation Source: Arrow Div Dam</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Boat Position: (Powered) (Anchored)</td>
<td>River Current: (Swift) (Eddie) (Calm) (Ripple)</td>
</tr>
<tr>
<td>River Mile: 70.7</td>
<td>Boat Traffic: Support boats secured and gravity diver</td>
</tr>
<tr>
<td>Water Surface: (Calm) (Small Waves) (Choppy)</td>
<td></td>
</tr>
<tr>
<td>Surface Vegetation: Yes No</td>
<td></td>
</tr>
<tr>
<td>Was Vegetation Removed: Yes No</td>
<td></td>
</tr>
<tr>
<td>Notable shore surface features: (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location Photo IDs: (see Photo Log for descriptions)</th>
<th>Camera ID: 742 pentaxX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo ID: 111-0332 Time: 0838</td>
<td>Photo ID: 111-0333 Time: 0838</td>
</tr>
<tr>
<td>Photo ID: 111-0334 Time: 0738</td>
<td>Photo ID: 111-0335 Time: 0838</td>
</tr>
</tbody>
</table>

| General Notes: | |
|----------------| |

C.R. - cultural resources  
Field Supervisor Initials Date: 10/8/13  
Sample Lead Initials Date: 10/8/13  

**URS**
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>4-R5</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>08:31</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>3</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>EASTING:</td>
<td>419267.57</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5891733.70</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater
- Cumulative Percent of Porewater Syringe filled: **100%**
- pH of Sediment in Sampler: **7.24**
- Description:

### Sediment Characteristics
- **Type:**
  - % Silt: **98** (<1/16 mm)
  - % Sand: **2** (1/16 - 2 mm)
  - % Gravel
  - % Cobbles
  - % Silica Glass
- **Color:**
  - Munsell Color Chart #: **5Y 3/2**
  - Description: dark olive gray
- **Redox Boundary:**
  - Present? **Yes**
  - If present -- Depth Below Sediment Surface (inches): **None**
- **Odor:**
  - Hydrogen sulfide

### Amphipods:
- **Other:**

### Debris (twigs/leaves):
- **Other:**

### Sample Collected Using:
- **Van Veen**
- **Eckman**
- **Ponar**
- **Homogenized Sample**
- **Other**

### Photo Numbers:
- (see Photo Log for descriptions)

### Sediment (SE) Sample ID: **SE-4-R5**
- Time: **08:31**
- # Containers: **4/2**
- Volume: **100/80 %**

### Duplicate SE Sample ID:
- Time: **09:34**
- # Containers: **0**
- Volume: **%**

### Split SE Samples (EPA/NPS/CCT):
- # Containers: **0**
- Volume: **%**

### Pore Water (PW) Sample ID: **PW-4-R5**
- Time: **09:24**
- # Containers: **3**
- Volume: **100 %**

### Sample Lead Initials: **KJ**
### Date: **9/8/13**
### Field Supervisor Initials: **NY**
### Date: **9/10/13**

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>III-0331</td>
<td>8:33</td>
<td>Station ID 4-R5</td>
</tr>
<tr>
<td>III-0332</td>
<td>8:35</td>
<td>Station ID 4-R5</td>
</tr>
<tr>
<td>III-0333</td>
<td>8:34</td>
<td>Left bank</td>
</tr>
<tr>
<td>III-0334</td>
<td>8:38</td>
<td>Right bank</td>
</tr>
<tr>
<td>III-0335</td>
<td>8:38</td>
<td>Downstream of site</td>
</tr>
<tr>
<td>III-0336</td>
<td>8:38</td>
<td>SE Sample, Grab #1</td>
</tr>
<tr>
<td>III-0337</td>
<td>8:40</td>
<td>SE Scoop, Grab #1</td>
</tr>
<tr>
<td>III-0338</td>
<td>9:30</td>
<td>Homogenized Sample, Grab #1</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature] Date: 10/10/13
Sample Lead Initials: [Signature] Date: 10/8/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9-28-13
Station Identifier: 5-B1
Vessel: Tahoma
Sampling Crew: Rapp/Herre/Hale
Vessel Crew: Tydow/Schuefer/Hamerly
EPA Observer: Latier
C.R. Observer: Hubert
Arrival Time: 0807
Departure Time: 1135
River Stage:
Water Surface Elev. (ft): 1284.4
Weather Conditions Upon Arrival:
Temp (°F): 53°
Wind (mph): <5
Clouds/Precipitation: Rain
Water Surface Elevation Source: Coulee Dam

Site Information:
Boat Position: (flowered) (Anchored)
River Mile: 
Water Surface: (Calm) (Small Waves) (Gappy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No
Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-0176</td>
<td>0807</td>
<td>TA-2 pentax</td>
</tr>
<tr>
<td>105-0179</td>
<td>0808</td>
<td></td>
</tr>
</tbody>
</table>

General Notes:

C.R. - cultural resources
Field Supervisor Initials: DA
Date: 9/28/13
Sample Lead Initials: JR
Date: 9-28-13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310/B#</th>
<th>Station Identifier: 5-B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 62.4&quot;</td>
</tr>
<tr>
<td>Drop #</td>
<td>Sampler Penetration (inches): 10&quot;</td>
</tr>
<tr>
<td></td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Drop #</td>
<td>Sample Location: EASTING: 413946.67 NAD_83_UTM_Zone_11_North</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 100% Accepted Rejected
pH of Sediment in Sampler: 8.31 su Description: 

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>2</td>
<td>(1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color: Munsell Color Chart #:
Description:
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): 
Odor: None Hydrogen sulfide Other: 

Amphipods:
Debris/algae/leaves:
Other:

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers
(see Photo Log for descriptions)
Sediment in Grab: 105-2488 Time: 0.817
Homogenized Sample: 105-2488 Time: 0.818

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: GA Date: 7-27-13 Field Supervisor Initials: 204 Date: 9/28/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
**Sediment/Porewater Sampling Form**  
*Upper Columbia River RI/FS*  
*2013 Phase 2 Sediment Study*  

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>5 - B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>62.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time:</td>
<td>Sampler Penetration (inches):</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>413751.14 (NAD_83_UTM_Zone_11_North)</td>
<td>NORTING:</td>
<td>5354594.01</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: 8.43%
- pH of Sediment in Sampler:
- Description:

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: % Silt (≤1/16 mm)</td>
</tr>
<tr>
<td>98</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>% Gravel</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Color: Munsell Color Chart #:</td>
</tr>
<tr>
<td>Description:</td>
</tr>
<tr>
<td>Redox Boundary:</td>
</tr>
<tr>
<td>Present? Yes No</td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>Odor: None</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris/twigs/leaves:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
</tr>
<tr>
<td>Eckman</td>
</tr>
<tr>
<td>Ponor</td>
</tr>
<tr>
<td>Shovel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Sediment in Grab: 105-0183 Time: 08:33</td>
</tr>
<tr>
<td>Homogenized Sample: 105-0184 Time: 08:33</td>
</tr>
<tr>
<td>Other: 105-0184 Time: 08:33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:**  
Date: 9/28/13  
Field Supervisor Initials:  
Date: 9/28/13  

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
*Upper Columbia River Re/FS*  
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet): 12.0</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time: 08:45</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td>NAD 83_UTM_Zone_11_North</td>
</tr>
<tr>
<td>EASTING:</td>
<td>413955.14</td>
<td>NORTING: 5354595.27</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater:**

- Cumulative Percent of Porewater Syringe filled: 
  - Accepted  
  - Rejected

- pH of Sediment in Sampler: 8.25

**Sediment Characteristics:**

- Type:  
  - % Silt: 98 (<1/16 mm)  
  - % Sand: 2 (1/16 - 2 mm)  
  - % Gravel  
  - % Cobble  
  - % Silica Glass  

- Color:  
  - Munsell Color Chart #: 5Y 3/8  
  - Description:  
    - Damp:  
      - Color:  
        - Value:  
          - Ash  
          - Grey

- Redox Boundary:  
  - Present?:  
    - Yes  
    - No

- Sediment Surface (inches):  
  - Other:

- Odor:  
  - None  
  - Hydrogen sulfide

**Amphipods:**

- Debris (twigs/leaves):

- Sample Collected Using:
  - Van Veen
  - Eckman
  - Ponor
  - Shovel

- Photo Numbers’
  (see Photo Log for descriptions)
  - Sediment in Grab: 105-0186  
  - Time: 0849
  - Homogenized Sample:  
    - Time: 0849
  - Other: 105-0187

- Sediment (SE) Sample ID:  
  - Time:  
  - # Containers: 
  - Volume: 

- Duplicate SE Sample ID:  
  - Time:  
  - # Containers: 
  - Volume: 

- Split SE Samples (EPA/NPS/CCT):  
  - # Containers: 
  - Volume: 

- Pore Water (PW) Sample ID:  
  - Time:  
  - # Containers: 
  - Volume: 

**Sample Lead Invoices:**

- Date: 9-28-13  
- Field Supervisor Initials: NCH  
- Date: 9/28/13

Sample ID Format:  
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bicassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>5-B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>62.9</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>11&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5'max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>413599.66 NAD_B3_UTM_Zone_11_North</td>
<td></td>
<td>5354593.55 NORTHING</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes NO
2. Overlying water present?  
   - YES NO
3. Overlying water excessively turbid?  
   - YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES NO
6. Any sign of sediment/loss (incomplete closure, penetration at angle, filling upon retrieval)?  
   - YES NO
7. Sample is:  
   - Accepted Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled: 100%
- pH of Sediment in Sampler: 8.36
- Description:
- Accepted Rejected

### Sediment Characteristics

- Type: % Silt (1/16 mm) 98
- % Sand (1/16 - 2 mm) 2
- % Gravel
- % Cobble
- % Silica Glass

### Color
- Munsell Color Chart #: 5Y 3/2
- Description: Dark Olive Grey

### Redox Boundary
- Present? Yes No
- If present -- Depth Below Sediment Surface (inches):
- Odor: None
- Hydrogen sulfide

### Amphipods:
- Debris/twigs/leaves: [Sample Collected Using](Van Veen) [Sampled Using](Eckman)
- tubes: [Sample Collected Using](Van Veen) [Sampled Using](Eckman)
- [Sample Collected Using](Ponar) [Sampled Using](Shovel)
- [Sample Collected Using](Other)

### Macrophytes:
- Sediment (SE) Sample ID: SE-5-B1  
  - Time: 10:11  
  - # Containers: 4/3  
  - Volume: 100/80 |
- Duplicate SE Sample ID:  
  - Time:  
  - # Containers:  
  - Volume: |
- Split SE Samples (EPA/NPS/CCT): NPS-SE-5-B1  
  - # Containers: 1  
  - Volume: 80 |
- Pore Water (PW) Sample ID: PW-5-B1  
  - Time: 09:58  
  - # Containers: 3  
  - Volume: 100 |

### Sample Lead Initials: JF  
Date: 9-28-13  
Field Supervisor Initials: KDP  
Date: 9/28/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tr>
<td>105-0174</td>
<td>08:07</td>
<td>Sta 5-B1 ID</td>
<td>JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>105-0177/78</td>
<td>08:08</td>
<td>North up river from Sta 5-B1</td>
<td></td>
<td>North</td>
<td></td>
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<tr>
<td>105-0179</td>
<td>08:08</td>
<td>west shore from Sta 5-B1</td>
<td>JR</td>
<td>West</td>
<td>east shore from Sta 5-B1</td>
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<tr>
<td>105-0180</td>
<td>08:08</td>
<td></td>
<td>JR</td>
<td>East</td>
<td>east shore from Sta 5-B1</td>
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<tr>
<td>105-0181</td>
<td>08:17</td>
<td>drop #1 grab accepted</td>
<td>JR</td>
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<td>drop #1 SE in scoop</td>
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<td>105-0182</td>
<td>08:18</td>
<td></td>
<td>JR</td>
<td></td>
<td>drop #1 SE in scoop</td>
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<tr>
<td>105-0183</td>
<td>08:33</td>
<td>drop #2 SE in grab</td>
<td>JR</td>
<td></td>
<td>drop #2 SE in scoop</td>
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<tr>
<td>105-0184</td>
<td>08:33</td>
<td></td>
<td>JR</td>
<td></td>
<td>drop #2 SE in scoop</td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
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<tr>
<td>105-0185</td>
<td>0837</td>
<td>drop #2</td>
<td>105-0186</td>
<td>0849</td>
<td>drop #3 SE in grab accepted</td>
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<tr>
<td></td>
<td></td>
<td>Crustacean</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>105-0187</td>
<td>0849</td>
<td>drop #3 SE in scoop</td>
<td>105-0188</td>
<td>0902</td>
<td>drop #4 SE in grab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105-0189</td>
<td>0902</td>
<td>drop #4 in scoop</td>
<td>105-0190</td>
<td>1008</td>
<td>5-B1 drops #1-4 homogenized tub</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>105-0191</td>
<td>1027</td>
<td>Chain of Custody</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>NPS-SFE-5-B1</td>
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<tr>
<td></td>
<td></td>
<td>Transferred 1024</td>
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</tr>
</tbody>
</table>
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189  
Date: 9-30-13

Sampling Crew: JR/MH/SM  
EPA Observer: Tomel  
Arrival Time: 1020

Station Identifier: RRP-49F-5-C2  
Vessel: Tahoma  
Vessel Crew: trudeau/shaffer/posey  
C.R. Observer: Hubert  
Departure Time: 1224

River Stage:  
Water Surface Elev. (ft): 1284.95

Weather Conditions Upon Arrival  
Temp (°F): 58°F  
Wdh (mph): 10-15  
Clouds/Precipitation: mostly cloudy

Site Information:  

Boat Position: (Powered)  
River Mile: 678  
Boat Traffic: Support boats

Water Surface: (Calm)  
Surface Vegetation Present: Yes  
Was Vegetation Removed: No

Notable shore surface features: (rock outcrops, streams, wetlands, oxbows, culverts, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:  
(see Photo Log for descriptions)  
Photo ID: 106-0193  Time: 1019  
Photo ID: 106-0194  Time: 1019  
Photo ID: 106-0195  Time: 1019  
Photo ID: 106-0196  Time: 1019

General Notes:

C.R. - cultural resources

Field Supervisor Initials: Date: 10/01/13  
Sample Lead Initials: Date: 9-30-13

URS
**Sediment/Porewater Sampling Form**
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>5-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>82.2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>10:22</td>
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<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 412148.51 (NAD_83_UTM_Zone_11_North)</td>
<td>NORTHING: 5354419.25</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

| Cumulative Percent of Porewater Syringe filled: | 100 % |
| pH of Sediment in Sampler: | 8.41 |

**Sediment Characteristics**

- **Type:**
  - % Silt: 100 (<1/16 mm)
  - % Sand: (1/16 - 2 mm)
  - % Gravel: 
  - % Cobble: 
  - % Silica Glass: 

**Color:** Munsell Color Chart: 10YR 3/2
- Description: Very dark grayish brown

**Redox Boundary:**
- Present: Yes
- If present -- Depth Below Sediment Surface (inches): 

**Odo:** None Hydrogen sulfide

**Amphipods:**
- Debris (twigs/leaves):
- Sample Collected Using:
  - Van Veen
  - Eckman
  - Ponar
  - Shovel

**Photo Numbers 's**
- (See Photo Log for descriptions)
  - Sediment in Grab: 06-0197 Time: 10:29
  - Homogenized Sample: Time: 10:30
  - Other: 06-0198 Scoop Time: 10:30

**Sediment (SE) Sample ID:** 5-C2 Time: 11:40 # Containers: 4/1 Volume: 100/180%

**Duplicate SE Sample ID:** Time: 

**Split SE Samples (EPA/NPS/CCT):**

**Pore Water (PW) Sample ID:** PW-5-C2 Time: 11:32 # Containers: 3 Volume: 100%

**Sample Lead Initials:** 9-30-13 **Field Supervisor Initials:** 10-11-13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Project: 36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>106-0193</td>
<td>1019</td>
<td>Camera Serial #: Ta-2 pentax</td>
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<tr>
<td>106-0194</td>
<td>1019</td>
<td>Station Identifier: 5-C2</td>
</tr>
<tr>
<td>106-0195</td>
<td>1019</td>
<td>Vessel: Tahoma</td>
</tr>
<tr>
<td>106-0196</td>
<td>1019</td>
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<tr>
<td>106-0197</td>
<td>1029</td>
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<td>106-0198</td>
<td>1030</td>
<td></td>
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<td>106-0199</td>
<td>1138</td>
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<table>
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<tr>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JR</td>
<td>E</td>
<td>East Shore</td>
</tr>
<tr>
<td>JR</td>
<td>W</td>
<td>North up river</td>
</tr>
<tr>
<td>JR</td>
<td>S/E in grab #1</td>
<td>SJ in grab, homogenized</td>
</tr>
<tr>
<td>BM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials:  
Date: 11/11/13  
Sample Lead Initials:  
Date: 9-30-13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9-27-13
Station Identifier: 5-c4
Vessel: Tahoma
Vessel Crew: Taubert/Schaefer/Humery
EPA Observer: Lattier
C.R. Observer: Hubert
Arrival Time: 0825
Departure Time: 1018
River Stage: Water Surface Elev. (ft): 1284.3
Weather Conditions Upon Arrival
Temp (°F): 49
Wind (mph): calm
Clouds/Precipitation: partly cloudy

Site Information:
Boat Position: Powered
River Mile: 475
Power River Surface: Calm
Water Surface Elevation Source: Coulee Dam
Surface Vegetation Present: Yes
Was Vegetation Removed: Yes
Boat Traffic: support boat

Notable shore surface features:
Homes along east shore.

Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID: TA-2 pentax optio 10
Photo ID: 104-0135
Time: 0801
Photo ID: 104-0136
Time: 0824
Photo ID: 104-0137
Time: 0825
Photo ID: 104-0138
Time: 0825

General Notes:

C.R.: cultural resources

Field Supervisor Initials: 10H
Date: 9/28/13
Sample Lead Initials: 28
Date: 9-27-13

URS
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>87.4</td>
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<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>12</td>
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<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 413790.34 NAD_83 UTM Zone 11 North</td>
<td>NORTTHING: 5350031.34</td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  **NO**
2. Overlying water present? **YES**  **NO**
3. Overlying water excessively turbid? **YES**  **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  **NO**
7. Sample is: **Accepted**  **Rejected**

#### Porewater

- Cumulative Percent of Porewater Syringe filled: **100%**  
  **Accepted**  **Rejected**
- pH of Sediment in Sampler: **8.15**  
  Description: _su_

#### Sediment Characteristics

- **Type**: % Silt **100** (%/16 mm)  
  % Sand **<1/16 mm**  
  % Gravel **(1/16 - 2 mm)**  
  % Cobbles **(2 - 5 cm)**  
  % Silica Glass:  
  Color: Munsell Color Chart #: 5Y 3/1  
  Description: _Very dark grey_

- Redox Boundary: **Yes**  **No**
- Odor: **None**  **Hydrogen sulfide**

#### Amphipods:
- Debris (twigs/leaves): **8**
- Tapes: **Clem**
- Macrophyles:

#### Photo Numbers:
- Sediment in Grab: 104-0139  
  Time: 104-0141  
  Other: 104-0140  
- Homogenized Sample:  
  Time: 104-0141  
- Split SE Sample:  
  Time: 104-0141  
- Pore Water (PW) Sample:  
  Time: 104-0141  

#### Sample Lead Initials: M  
Date: 9-27-13  
Field Supervisor Initials: A04  
Date: 9-28-13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
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<tbody>
<tr>
<td>104-0135</td>
<td>0801</td>
<td>Station ID: 5-C4</td>
<td>104-0136</td>
<td>0824</td>
<td>North up River</td>
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<td>JR</td>
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<td>JR</td>
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</tr>
<tr>
<td>East</td>
<td></td>
<td>East shore</td>
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<td>104-0139</td>
<td>0845</td>
<td>SE in grab.</td>
<td>104-0140</td>
<td>0848</td>
<td>SE Scoop.</td>
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<td>0948</td>
<td>Homogenized SE turb.</td>
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<td>JR</td>
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</table>

Field Supervisor Initials:  
Date: 4/11/13

Sample Lead Initials:  
Date: 9-27-13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9/25/13
Sampling Crew: VETER/RAPP/KELLY
EPA Observer: LATER
Arrival Time: 09/19
River Stage:
   Water Surface Elev. (ft): ____________________________
   Water Surface Elevation Source: ____________________________
Weather Conditions Upon Arrival
   Temp (°F): 38°
   Wind (mph): 5
   Clouds/Precipitation: Partly Sunny

Site Information:
   Boat Position: (Powered) (Anchored)
   River Mile: 635
   Water Surface: (Calm) (Small Waves) (Choppy)
   Surface Vegetation Present: Yes No
   Was Vegetation Removed: Yes No
   Notable shore surface features:
   (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)
   BEACH TO WEST COVE TO EAST

Sample Location Photo IDs:
(see Photo Log for descriptions)
   Photo ID: 102-0049 Time: 05/19
   Photo ID: 102-0071 Time: 08/20
   Camera ID:
General Notes:
   0930- went to shore to process material.
   -> 4 good grabs
   -> all porewater collected.

C.R. - cultural resources
Field Supervisor Initials AM Date: 9/27/13
Sample Lead Initials AM Date: 9/25/13
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: C-31</th>
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<tbody>
<tr>
<td>Anchor Point (max 3) 2 3</td>
<td>Water Depth (feet): 36.5'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 0822</td>
<td>Sampler Penetration (inches): 10.5”</td>
</tr>
<tr>
<td>Angle (&lt; 5' max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

### Sample Location:

| EASTING: 41086438 | NORTING: 533548146 |

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment precluded against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of clarification or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater:

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
</table>

### pH of Sediment in Sampler: 9.59

### Sediment Characteristics:

- **Type:**
  - % Silt: 95% (<1/16 mm)
  - % Sand: 5% (1/16 - 2 mm)
  - % Gravel: 0
  - % Cobble: 0
  - % Silica Glass: 0

- **Color:** Munsell Color Chart #
- **Redox Boundary:** Present? Yes
- **Odor:** None
- **Sediment Surface (inches):**
- **Hydrogen sulfide:**

### Amphipods:

- Debris/twig/leaves: Van Veen
- Sample Collected Using: Eckman
- Sediment in Grab: Time: 102-00073
- Homogenized Sample: Time: 1103
- Other: Scoop 102-00074 Time: 0525

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>Sheen Present: Yes</th>
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</thead>
</table>

### Sediment (SE) Sample ID: SE-L-D1 Time: 1049

# Containers: % Volume: %

### Duplicate SE Sample ID: Time: %

# Containers: % Volume: %

### Split SE Samples (EPS/NPS/SCC):

<table>
<thead>
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<th>Time:</th>
<th>% Containers:</th>
</tr>
</thead>
</table>

### Pore Water (PW) Sample ID: PW-L-B1 Time: 1035

# Containers: % Volume: %

### Sample Lead initials: MW Date: 9/25/13 Field Supervisor initials: HA Date: 9/26/13

**URS**

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Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-E2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Forth
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 6-B1</th>
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<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 39.7</td>
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<tr>
<td>Drop # 1 2 3 Cast Time 0842</td>
<td>Sampler Penetration (inches): 10.5</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>Sample Acceptance Criteria:</td>
</tr>
<tr>
<td>EASTING: 410876.80 (NAD_83_UTM_Zone_11_North)</td>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
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<tr>
<td>NORTHING: 5335496.24</td>
<td>2. Overlying water present? YES NO</td>
</tr>
<tr>
<td></td>
<td>3. Overlying water excessively turbid? YES NO</td>
</tr>
<tr>
<td></td>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of churning or visible washout? YES NO</td>
</tr>
<tr>
<td></td>
<td>5. Desired penetration depth (4 to 6 inches) achieved? YES NO</td>
</tr>
<tr>
<td></td>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO</td>
</tr>
<tr>
<td></td>
<td>7. Sample is: Accepted Rejected</td>
</tr>
</tbody>
</table>

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringes filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>6.6</td>
<td>su</td>
</tr>
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</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (1/16 in)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Present? Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present → Depth Below Sediment Surface (inches):</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th>None Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris/twig/leaves:</th>
</tr>
</thead>
</table>

### Macrophytes:

<table>
<thead>
<tr>
<th>Tube Collecting Using</th>
</tr>
</thead>
</table>

### Sediment (SE) Sample ID: SE-6-B1 Time: 1049

<table>
<thead>
<tr>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Duplicate SE Sample ID: 

<table>
<thead>
<tr>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA SPEC): 

<table>
<thead>
<tr>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Pore Water (PW) Sample ID: PW-6-B1 Time: 1035

<table>
<thead>
<tr>
<th># Containers:</th>
<th>Volume:</th>
</tr>
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</table>

---

Sample Lead Initials: MV Date: 9/25/13 Field Supervisor Initials: DH Date: 9/27/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>6-131</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>2 3</td>
<td>Water Depth (feet)</td>
<td>34.3'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>0852</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sediment Location:</td>
<td>EASTING: 410854.64</td>
<td>NORTING: 5335486.62</td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?
   - Yes  NO
2. Overlying water present?
   - YES  NO
3. Overlying water excessively turbid?
   - YES  NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?
   - YES  NO
5. Desired penetration depth (4 to 6 inches) achieved?
   - YES  NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?
   - Accepted  Rejected

<table>
<thead>
<tr>
<th>Porewater</th>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Blank Sampler:</td>
<td>5.49</td>
<td>su</td>
<td>Description:</td>
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</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>5</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>5Y 2.5/2</td>
<td>Black</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If present - Depth Below Sediment Surface (inches):</td>
<td>1&quot;</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
<td>Hydrogen sulfide</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Other:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Van Veen</td>
<td>Eckman</td>
<td>Poner</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>SE-6-B1</th>
<th>Time:</th>
<th>0849</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EP/ANPS/GT):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>PW-6-B1</td>
<td>Time:</td>
<td>0845</td>
</tr>
</tbody>
</table>

---

**Sample Lead Initials:** MW  
**Date:** 9/25/13  
**Field Supervisor Initials:** KN  
**Date:** 9/29/13

**Sample ID Format:**
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: G-B1

Anchor Point (max 3) 1 2 3
Water Depth (feet): 36.21
Drop # 1 2 3 Cast Time 0907
Sampler Penetration (inches): 10

Angle (< S' max) Yes No
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 410 863.18 (NAD 83 UTM Zone_11_North)
NORTHING: 533 549 7.95

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 100%
Description: blue ISOM CERAMIC

pH of Sediment in Sampler: 5.69 Description: 1.5" SW

Sediment Characteristics

Type: % Silt 95 (<1/16 mm)
% Sand 5 (1/16 - 2 mm)
% Gravel 0
% Cobbles 0
% Silica Glass 0

Color: Munsell Color Chart #: 2.5Y 2.5/1 Description: Black

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): 0.5"

Odor: None Hydrogen sulfide

Amphipods: Other
Debris (twigs/leaves): Other

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Stratified sediment: Yes No
Sheen Present: Yes No

Sample ID: SE-6-B1 Time: 1049 # Containers: 7 Volume: 4.00 3.80 %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPANPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: MW Date: 9/25/13 Field Supervisor Initials: 104 Date: 9/25/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
## Photo Log

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>102-0068</td>
<td>0750</td>
<td>MV</td>
<td></td>
<td>Station ID</td>
</tr>
<tr>
<td>102-0069</td>
<td>0819</td>
<td>MV</td>
<td>West</td>
<td>West Shore @ G-B1</td>
</tr>
<tr>
<td>102-0070</td>
<td>0820</td>
<td>MV</td>
<td>East</td>
<td>East Shore @ G-B1</td>
</tr>
<tr>
<td>102-0071</td>
<td>0820</td>
<td>MV</td>
<td>South</td>
<td>South, from G-B1</td>
</tr>
<tr>
<td>102-0072</td>
<td>0825</td>
<td>MV</td>
<td></td>
<td>Drop 1 in grab w/ water</td>
</tr>
<tr>
<td>102-0073</td>
<td>0828</td>
<td>MV</td>
<td></td>
<td>Drop 1 after siphoning</td>
</tr>
<tr>
<td>102-0074</td>
<td>0829</td>
<td>MV</td>
<td></td>
<td>Sediment in scoop</td>
</tr>
<tr>
<td>102-0075</td>
<td>0844</td>
<td>MV</td>
<td></td>
<td>API Drop 2 w/ overlying</td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
<td>Camera Serial #: TA-2 PENTAX OPTIO W30</td>
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<td>----------------------------------------</td>
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</tr>
<tr>
<td>102-0076</td>
<td>0546</td>
<td>Sediment after overlying water removed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0075</td>
<td>0559</td>
<td>AP1 Drop 3 sediment in grab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0079</td>
<td>0647</td>
<td>Sediment in scoop showing redox boundary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0080</td>
<td>0657</td>
<td>AP1 Drop 3 sediment in grab of water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0080</td>
<td>0910</td>
<td>AP2 Drop 1 (Grab) in overlying water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0081</td>
<td>0911</td>
<td>AP2 Drop 1 Sediment in grab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0052</td>
<td>0912</td>
<td>Sediment in Scoop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
<td>Photo ID</td>
<td>Time</td>
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<tr>
<td>102-0083</td>
<td>1007</td>
<td>DOWATER COLLECTION</td>
<td>102-0084</td>
<td>1103</td>
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<tr>
<td>102-0085</td>
<td>1103</td>
<td>HOMOGENIZED SEDIMENT</td>
<td>102-0086</td>
<td>1104</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0087</td>
<td>1105</td>
<td>NPC COC</td>
<td></td>
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</tr>
</tbody>
</table>

Field Supervisor Initials: [Signatures]
Sample Lead Initials: [Signatures]
**Sample Location Form**
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310199</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>9/25/13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>VETER/RAAF/KELLY</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>LAIER</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>1149</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td></td>
</tr>
<tr>
<td>Station Identifier:</td>
<td>6-B3</td>
</tr>
<tr>
<td>Vessel:</td>
<td>TAHOMA</td>
</tr>
<tr>
<td>Vessel Crew:</td>
<td>TRUDEAU/SCHAEFER/HAMBERLY</td>
</tr>
<tr>
<td>C.R. Observer:</td>
<td>HUBERT</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>1520</td>
</tr>
<tr>
<td>Weather Conditions Upon Arrival</td>
<td></td>
</tr>
<tr>
<td>Temp (°F):</td>
<td>65</td>
</tr>
<tr>
<td>Wind (mph):</td>
<td>&lt;10 mph</td>
</tr>
<tr>
<td>Clouds/Precipitation:</td>
<td>partly sunny</td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Boat Position:</td>
<td>Powered</td>
</tr>
<tr>
<td>River Mile:</td>
<td>666</td>
</tr>
<tr>
<td>River Current:</td>
<td>(Swift)</td>
</tr>
<tr>
<td>Boat Traffic:</td>
<td>SIERRA / WEATHERMAN</td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>Yes</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>NPS 12 Fishing Boats</td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td></td>
</tr>
<tr>
<td>Camera ID:</td>
<td>PENTAX OPTIO W10</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>102-0088</td>
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<tr>
<td>Photo ID:</td>
<td>102-0090</td>
</tr>
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<td>Photo ID:</td>
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</tr>
<tr>
<td>General Notes:</td>
<td>BECAME VERY CHOPPY, POOR RECOVERY AS AREA OF SEDIMENT LIMITED. ABANDONED LOCATION FOR 6-R3</td>
</tr>
<tr>
<td>C.R. - cultural resources</td>
<td></td>
</tr>
<tr>
<td>Field Supervisor Initials:</td>
<td>AVN</td>
</tr>
<tr>
<td>Sample Lead Initials:</td>
<td>AVM</td>
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**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310169</th>
<th>Station Identifier:</th>
<th>6-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>2</td>
<td>Water Depth (feet):</td>
<td>72.31</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Sampler Penetration (inches):</td>
<td>13+</td>
</tr>
<tr>
<td>Angle (&lt; 5’max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>[NAD_83_UTM_Zone_11_North]</td>
<td>NORTING:</td>
<td>5335810.58</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___%  
Accepted  
Rejected
pH of Sediment in Sampler: ______ su  
Description: ____________

Sediment Characteristics
| Type          | % Silt (<1/16 mm) | Color: Munsell Color Chart #:  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand 1/16 - 2 mm</td>
<td>% Gravel</td>
<td>Description:</td>
</tr>
</tbody>
</table>
| % Cobble | % Silica Glass | Redox Boundary:  
| Present? | Yes | No |
| If present -- Depth Below Sediment Surface (inches): |
| Odor: None | Hydrogen sulfide | Other: |

Amphipods:  
Debris (twigs/leaves): NO  
Tubes: NO  
Macrophytes: NO

Sample Collected Using
| Stratified sediment: | Yes | No |  
| Sheen Present: | Yes | No |  
| Sample ID: |  
| Sediment in Grab: |  
| Homogenized Sample: |  
| Other: |  
| Time: |  
| Time: |  

Sediment (SE) Sample ID:  
Time:  
# Containers:  
Volume: %

Dissolved SE Sample ID:  
Time:  
# Containers:  
Volume: %

Split SE Samples (EPANPS/CCT):  
Time:  
# Containers:  
Volume: %

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume: %

Sample Lead Initials:  
Date:  
Field Supervisor Initials:  
Date:  

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>6-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>36.6’</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>12:10</td>
</tr>
<tr>
<td>Angle (&lt; 5’max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 4111</td>
<td>S13 (NAD 83 UTM Zone_11 North)</td>
<td>NORTING: 5335832.71</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: __________ su Description: __________

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles 1/10 - 1/2 cobble % Silica Glass: _________
Color: Munsell Color Chart #: Description: __________
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): __________
Odor: None Hydrogen sulfide
Other: __________

Amphipods: Debris/twigs/leaves: Tubes: Other: Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab:</td>
<td>102-0093</td>
<td>Time:</td>
<td>120-230</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: M/ Date: 9/25/13  
Field Supervisor Initials: L/N Date: 9/27/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number:</td>
<td>36310189</td>
</tr>
<tr>
<td>Station Identifier:</td>
<td>6-B3</td>
</tr>
<tr>
<td>Anchor Point (max 3):</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>57.3</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time:</td>
<td>1215</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>2</td>
</tr>
<tr>
<td>Angle (&lt; 5’max):</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?:</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>NAD 83 UTM Zone 11 North</td>
</tr>
<tr>
<td>EASTING:</td>
<td>411535</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5325829.36</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td>YES NO</td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES NO</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES NO</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES NO</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES NO</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES NO</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES NO</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Handful of gravel+ sand Accepted Rejected</td>
</tr>
</tbody>
</table>

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected

**pH of Sediment in Sampler**: ___

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand</td>
<td>5</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary: Yes No</td>
</tr>
<tr>
<td>% Gravel</td>
<td>95</td>
<td></td>
<td>If present -- Depth Below</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td>Odor: None Hydrogen sulfide</td>
</tr>
</tbody>
</table>

**Amphipods:** No
**Tubes:** No
**Macrophytes:** No

**Stratified Sediment:** Yes No
**Sheen Present:** Yes No

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Name</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td>Ponar</td>
<td>Shovel</td>
</tr>
</tbody>
</table>

**Photo Numbers’ (see Photo Log for descriptions)**

| Sediment in Grab | Time: 12-18 |
| Homogenized Sample: | Time: |
| Other: | Time: |

**Sediment (SE) Sample ID:**

| Time | # Containers | Volume | % |

**Duplicate SE Sample ID:**

| Time | # Containers | Volume | % |

**Split SE Samples (EPA/NPS/CCT):**

| Time | # Containers | Volume | % |

**Pore Water (PW) Sample ID:**

| Time | # Containers | Volume | % |

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

**Sample Lead Initials:** MJ  
**Date:** 9/25/13

**Field Supervisor Initials:** AH  
**Date:** 9/27/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>6-B3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>54.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 3</td>
<td>1222</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING: 411 543,93</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **90% of sediment washed out due to cobble.** **Accepted**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>Color: Munsell Color Chart #:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Slit (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes: No</td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>No</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

### Stratified sediment: Yes

<table>
<thead>
<tr>
<th>Sheen Present:</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Duplicate SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sample Lead Initials: MW

<table>
<thead>
<tr>
<th>Date:</th>
<th>Field Supervisor Initials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/25/13</td>
<td>104</td>
</tr>
</tbody>
</table>

### Photo Numbers:

<table>
<thead>
<tr>
<th>Sediment in Grab: 102-0040</th>
<th>Time: 12:25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Other: cobble/ash 102-0055</td>
<td>Time: 12:25</td>
</tr>
</tbody>
</table>

### URS

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

#### Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>6-B3</th>
</tr>
</thead>
</table>

- **Anchor Point (max 3)**: 1 2 3
- **Drop #**: 1 2 3 Cast Time: 227
- **Angle (< 5°)**: Yes
- **Water Depth (feet)**: 6.341
- **Sampler Penetration (inches)**: No Recovery
- **Cultural Resources Observed?**: No Yes

#### Sample Location:
**EASTING:** 411526.87 **NAD_83_UTM_Zone_11_North**
**NORTHING:** 5335821.44

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **No Recovery**

#### Porewater
- % Cumulative Percent of Porewater Syringe filled: _____
- pH of Sediment in Sampler: _____

#### Sediment Characteristics
- **Type**:
  - % Silt: _____ (<1/16 mm)
  - % Sand: _____ (1/16 - 2 mm)
  - % Gravel: _____
  - % Cobbles: _____
  - % Silica Glass: _____

#### Amphipods:
- Tubes:
- Macrophytes:

#### Debris (twigs/leaves):
- Stratified sediment: Yes No
- Sheen Present: Yes No

#### Sample Collected Using
- Van Veen: **X**
- Eckman
- Ponar
- Shovel

#### Sediment in Grab:
- Sediment ID: 102-0007
- Time: 12:31

#### Homogenized Sample:
- Time: 12:31

#### Sediment (SE) Sample ID: 1234
- Time: __________
- # Containers: __________
- Volume: __________%

#### Duplicate SE Sample ID: 1234
- Time: __________
- # Containers: __________
- Volume: __________%

#### Split SE Samples (EPA/NPS/CCT):
- # Containers: __________
- Volume: __________%

#### Pore Water (PW) Sample ID: 1234
- Time: __________
- # Containers: __________
- Volume: __________%

---

**Sample Lead Initials:** MV | **Date:** 9/25/13
**Field Supervisor Initials:** JH | **Date:** 9/28/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310169</th>
<th>Station Identifier:</th>
<th>6-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>68.7</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1238</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

Sample Location:
EASTING: 411527.25 (NAD 83 UTM Zone 11 North)
NORTHING: 5335803.55

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ______% Accepted Rejected
pH of Sediment in Sampler: _______ su Description: _______

Sediment Characteristics
Type: % Silt (1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass
Color: Munsell Color Chart #:
Description: _______
Redox Boundary: Present? YES No
If present -- Depth Below Sediment Surface (inches): _______
Odor: None Hydrogen sulfide
Other: _______

Amphipods: NO Tubers: NO Macrophytes: NO
Debris (twigs/leaves): NO

Sample Collected Using
Van Veen Eckman Ponor Shovel
Sediment in Grab: 182-0098
Homogenized Sample: Time: 1241
Other: Time: Time: Time:

Sediment (SE) Sample ID: Time: _______ # Containers: _______ Volume: _______%
Duplicate SE Sample ID: Time: _______ # Containers: _______ Volume: _______%
Split SE Samples (EPA/NPS/CCT): # Containers: _______ Volume: _______%
Pore Water (PW) Sample ID: Time: _______ # Containers: _______ Volume: _______%

Sample Lead Initials MJ Date: 9/25/13 Field Supervisor Initials JD Date: 9/29/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 6-B3
Anchor Point (max 3) 1 2 3 Water Depth (feet): 67.3'
Drop # 1 2 3 Cast Time
Angle (< 5°) Yes No
Sampler Penetration (inches): 13
Cultural Resources Observed? No Yes
Sample Location:
EASTING: 411527.48
NORTHING: 533681.91

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___

pH of Sediment in Sampler: ________

Sediment Characteristics
Type: % Silt (1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobble
% Silica Glass

Color: Munsell Color Chart #:
Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Amphipods: Debris (twigs/leaves): No
Tubes: No
Macrophytes: No

Sample Collected Using
Van Veen X Eckman
Ponar
Shovel

Photo Numbers:
(see Photo Log for descriptions)
Sediment in Grab: 102-0089
Homogenized Sample: Time: 12.47
Other: 102-001 dripping sediment: Time: 12.48

Sediment (SE) Sample ID: Time: ______
# Containers: ________ Volume: ________ %
Duplicate SE Sample ID: Time: ________
# Containers: ________ Volume: ________ %

Split SE Samples (EPA/NPS/CGT): Time: ________
# Containers: ________ Volume: ________ %

Pore Water (PW) Sample ID: Time: ________
# Containers: ________ Volume: ________ %

Sample Load Initials
Date: 9/25/13
Field Supervisor Initials
Data: 9/29/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>6-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>98.41</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>13:20 (h)</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 411 507.57</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td>NORTHING: 5383581 8.79</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  
Accepted Rejected

**pH of Sediment in Sampler:** 8.37 su  
Description:___

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/18 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td>Yes</td>
<td>No</td>
<td>Present?</td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: NO  
Tubes: NO  
Macrophytes: NO

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab: 102-0183</th>
<th>Time: 1346</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
<td>Van Veen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eckman</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ponerar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shovel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
<td></td>
<td>Other: 102-0185 S6000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time: 1347</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: | | Time: | # Containers: | Volume: |
Duplicate SE Sample ID: | | Time: | # Containers: | Volume: |
Split SE Samples (EPA/NPS/CCT): | | # Containers: | Volume: |
Pore Water (PW) Sample ID: | | Time: | # Containers: | Volume: |

Sample Lead Initials  
Date: 9/25/13  
Field Supervisor Initials  
Date: 9/24/13

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 6-B3
Water Depth (feet): 945'

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 357
Angle (< 5' max) Yes No
Sampler Penetration (inches): 7

Sample Location:
EASTING: 411,511 04
NORTHING: 533,582 25

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
7. Sample is: Accepted Rejected

Porewater:
Cumulative Percent of Porewater Syringe filled: __%

pH of Sediment in Sampler: 5.38

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm)
% Gravel below 6'
% Cobble
% Silica Glass

Color: Munsell Color Chart #:
Description:

Redox Boundary: Yes No
Present? If present - Depth Below Sediment Surface (inches): 

Odor: None Hydrogen sulfide
Other:

Amphipods: NO
Debris (twigs/leaves): Other:
Tubes: NO

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers 's (see Photo Log for descriptions)

Sediment in Grab: 102-0157
Homogenized Sample: 
Other:

Sample Lead Initials: LW
Date: 9/15/13
Field Supervisor Initials: OI
Date: 9/19/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>6-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cast Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Barley</td>
<td>No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Location:

**EASTING:** 411526.51  
**NORTHING:** 5335828.60

(NAD_83_UTM_Zone_11_North)

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  **YES**
2. Overlying water present?  **YES**
3. Overlying water excessively turbid?  **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  **YES**
5. Desired penetration depth (4 to 6 inches) achieved?  **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  **YES**
7. Sample is:  **Rejected**

#### Porewater

Cumulative Percent of Porewater Syringe filled:  ___%

pH of Sediment in Sampler:  ___

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td>2-cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color:  
Munsell Color Chart #:  
Description:  

Redox Boundary:  
Present?  Yes  No  
If present -- Depth Below Sediment Surface (inches):  
Odor:  None  Hydrogen sulfide  
Other:  

Amphipods:  NO  
Debris (twigs/leaves):  NO  
Tubes:  NO  
Macrophytes:  ELAPA

#### Stratified sediment:

Yes  
Sheen Present:  Yes  

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Van Veen</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sediment in Grab:  02-6107  
Time:  1403  
Homogenized Sample:  02-6108  
Time:  1404

Sediment (SE) Sample ID:  6-B3  
Time:  
# Containers:  2-5y  
Volume:  

Duplicate SE Sample ID:  
Time:  
# Containers:  
Volume:  

Split SE Samples (EPA/NPS/CCT):  
# Containers:  
Volume:  

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume:  

Sample Lead Initials:  
Date:  9/25/13  
Field Supervisor Initials:  
Date:  9/24/13

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

Note: The document contains handwritten annotations that need to be clarified. The text is partially obscured or has been marked out, indicating corrections or additions. The document may require further interpretation to fully understand the context and content.
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>6-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>201</td>
<td>Water Depth (feet):</td>
<td></td>
</tr>
<tr>
<td>Drop #</td>
<td>123</td>
<td>Sampler Penetration (inches):</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No</td>
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<tr>
<td>Sample Location:</td>
<td>(NAD_B3_UTM_Zone_11_North)</td>
<td>EASTING:</td>
<td>NORTHING:</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Overlying water present?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Porewater
Cumulative Percent of Porewater Syringe filed: %

pH of Sediment in Sampler: su
Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm)
% Gravel
% Cobble
% Silica Glass:

Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
If present -- Depth Below
Sediment Surface (inches):

Amphipods: Tubes: Macrophytes:
Debris (twigs/leaves):
Other:

Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Sediment in Grab:
Homogenized Sample:
Other:

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: MW Date: 9/25/13 Field Supervisor Initials: 24 Date: 9/29/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Project Number</th>
<th>Date</th>
<th>Station Identifier</th>
<th>Vessel</th>
</tr>
</thead>
<tbody>
<tr>
<td>102-0085</td>
<td>115%</td>
<td>SHORE NE B3</td>
<td>36310189</td>
<td>9/25/13</td>
<td>6-B3</td>
<td>TAHOMA</td>
</tr>
<tr>
<td>102-0089</td>
<td>115%</td>
<td>SHORE SW L-B3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0090</td>
<td>115%</td>
<td>SE of 6-B3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0091</td>
<td>115%</td>
<td>STATION IDENTIFIER</td>
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<tr>
<td>102-0092</td>
<td>120%</td>
<td>API Drop 1 - overpenetration</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>102-0093</td>
<td>1211</td>
<td>API Drop 2 - rock in SE grabs</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>102-0094</td>
<td>1218</td>
<td>Minimal Sand @ API Drop 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>102-0095</td>
<td>1225</td>
<td>Washed out sediment in grab @ API 2 Drop 1 due to cobble in photo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
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<td>-----------</td>
<td>-------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>102-0046</td>
<td>12:25</td>
<td>remaining material at AP2 drop 1 in grab</td>
<td>102-0077</td>
<td>12:31</td>
<td>remaining sediment in grab after material washed out during retrieval AP2 Drop 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0088</td>
<td>12:41</td>
<td>recovered minimal material &lt;=1&quot;</td>
<td>102-0099</td>
<td>12:47</td>
<td>OVER penetration @ AP3 Drop 1</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>102-0100</td>
<td>12:45</td>
<td>OVER PENETRATED SAMPLE</td>
<td>102-0101</td>
<td>12:48</td>
<td>OVER PENETRATED SAMPLE dripping down side</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0102</td>
<td>13:44</td>
<td>grab AP3 Drop 2 with overlying water</td>
<td>102-0103</td>
<td>13:46</td>
<td>Sediment after overlying water siphoned</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: MV  Date: 9/25/13  
Sample Lead Initials: MV  Date: 9/25/13
# Photo Log

Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 6-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 9/25/13</td>
<td>Vessel: TAHOMA</td>
</tr>
<tr>
<td>Camera Serial #: TA-2 PENTAX OPTIO W80</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 102-0104</th>
<th>Time: 1347</th>
<th>Description: surface sediment in grab scoop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 102-0105</th>
<th>Time: 1347</th>
<th>Description: scoop showing suite + redox boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 102-0106</th>
<th>Time: 1359</th>
<th>Description: choppy water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td>North</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 102-0107</th>
<th>Time: 1403</th>
<th>Description: Sediment in grab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 102-0108</th>
<th>Time: 1407</th>
<th>Description: Sediment in scoop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: O\# Date: 9/29/13
Sample Lead Initials: AV Date: 9/25/13

[URS Logo]
## Sample Location Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>9/24/13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>VEITLI/RAPP/KELLY</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>FORD/CMR/LATIER</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>0846</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td></td>
</tr>
<tr>
<td>Station Identifier:</td>
<td>6-B5</td>
</tr>
<tr>
<td>Vessel:</td>
<td>TAHOMA</td>
</tr>
<tr>
<td>Vessel Crew:</td>
<td>TRIMBLE/CHILDS/HNREY</td>
</tr>
<tr>
<td>C.R. Observer:</td>
<td>AL HUBERT (Spokane)</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>1045</td>
</tr>
<tr>
<td>Weather Conditions Upon Arrival</td>
<td></td>
</tr>
<tr>
<td>Temp (°F):</td>
<td></td>
</tr>
<tr>
<td>Wind (mph):</td>
<td>5</td>
</tr>
<tr>
<td>Clouds/Precipitation:</td>
<td>CLOUDY/RAIN</td>
</tr>
</tbody>
</table>

### Site Information:
- **Boat Position:** (Powered) (Anchored)
- **River Mile:** 64
- **Water Surface:** (Calm) (Small Waves) (Choppy)
- **Surface Vegetation Present:** Yes No
- **Was Vegetation Removed:** Yes No
- **Notable shore surface features:** (rocks, outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

**Sample Location Photo IDs:**
- **Camera ID:** 5278-506601
- **Photo ID:** 106-0239  
  **Time:** 0850
- **Photo ID:** 106-0240  
  **Time:** 0850
- **Photo ID:** 106-0240  
  **Time:** 0850
- **Photo ID:** 106-0240  
  **Time:** 0850

**General Notes:**
- Bottom is hard clay.

**C.R. - cultural resources**
- Field Supervisor Initials:  
  **Date:** 9/25/13
- Sample Lead Initials:  
  **Date:** 9/24/13

**URS**
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 38310189  
**Station Identifier:** 6-B5

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08:55</td>
<td>2''</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5' max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:** 411013.79, 5333690.76

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater**

- Cumulative Percent of Porewater Syringe filled: %
- pH of Sediment in Sampler: 
- Description:
- Phosphate in Sediment:
- Munsell Color Chart #:
- Description:
- Redox Boundary:
- Present? Yes
- If present -- Depth Below:
- Sediment Surface (inches):
- Odor: None
- Hydrogen sulfide
- Other:

**Sediment Characteristics**

| Type | % Silt (<1/16 mm) | % Sand (1/16 - 2 mm) | % Gravel | % Cobble | % Silica Glass | Color: Munsell Color Chart #:
|------|------------------|---------------------|----------|----------|----------------|--------------------------------------|

- Amphipods: None
- Debris (twigs/leaves): None
- Tubes: None
- Macrophytes: None

**Photo Numbers:**

- Sediment in Grab: 06-02-12
- Sediment in Homogenized Sample: :

---

**Sample Lead Initials:** MM  
**Date:** 9/24/13  
**Field Supervisor Initials:** ON  
**Date:** 9/25/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>6-BS5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6.554</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
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<tbody>
<tr>
<td>2</td>
<td>0919</td>
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</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Cultural Resources Observe?</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>

Sample Location: **EASTING: 411003.16 (NAD_83 UTM Zone 11_North)**

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

#### Porewater

- Cumulative Percent of Porewater Syringe filled: **8.21%**
- pH of Sediment in Sampler: **8.21**
- Description:

#### Sediment Characteristics

- **Type:**
  - % Silt: **100 (<1/16 mm)**
  - % Sand: **(1/16 - 2 mm)**
  - % Gravel: **(2 - 8 mm)**
  - % Cobbles: **(8 - 20 mm)**
  - % Silica Glass: **Other:**

- **Color:**
  - Munsell Color Chart #: **Other:**
  - Description:

- **Redox Boundary:**
  - Present? **Yes**
  - If present - Depth Below Sediment Surface (inches): **0.25**

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

#### Amphipods:
- Sample Collected Using: **Van Veen**
- Sediment in Grab:
- Homogenized Sample:
- Other:

#### Debris (twigs, leaves):
- Sample Collected Using: **Van Veen**
- Sediment in Grab:
- Homogenized Sample:
- Other:

#### Stratified Sediment:
- Yes

#### Sheen Present:
- Yes

### Photo Numbers (see Photo Log for descriptions)

- **Photo Numbers:**
  - PW-6-BS5: Time: **0926**

### Sediment (SE) Sample ID:
- **SE-6-BS5**
- Time: **1244**
- # Containers: **Volume:**
- %

### Duplicate SE Sample ID:
- Time: **Volume:**
- %

### Split SE Samples (EPA/NPS/CCT):
- # Containers: **Volume:**
- %

### Pore Water (PW) Sample ID:
- **PW-6-BS5**
- Time: **1220**
- # Containers: **Volume:**
- %

### Sample Lead Initials: **MW**
- Date: **9/24/13**

### Field Supervisor Initials: **LY**
- Date: **9/25/13**

---

Sample ID Format:
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2


<table>
<thead>
<tr>
<th>Sediment/Porewater Sampling Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Columbia River RI/FS</td>
</tr>
<tr>
<td>2013 Phase 2 Sediment Study</td>
</tr>
</tbody>
</table>

**Project Number:** 36310189  |  **Station Identifier:** 6-B5

Anchor Point (max 3)  | 2  | 2  | 3  |  **Water Depth (feet):** 55.3

Drop #  | 1  | 2  | 3  |  **Cast Time:** 0943

Angle (< 5° max)  | Yes | No |

**Cultural Resources Observed:** No  | Yes |

Sample Location: 41011.8  |  **EASTING:** (NAD_83_UTM_Zone_11_North) 5333727.19  |  **NORTHING:**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES  | NO
2. Overlying water present? YES  | NO
3. Overlying water excessively turbid? YES  | NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? OVERLAIRED FROM HARD CLAY  | NO
5. Desired penetration depth (4 to 6 inches) achieved? YES  | NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES  | NO
7. Sample is: Accepted  | Rejected

**Porewater:**

Cumulative Percent of Porewater Syringe filled: __________%  | Accepted | Rejected

**pH of Sediment in Sampler:** 8.27  | su |

**Description:**

**Sediment Characteristics:**

- **Type:**
  - % Silt: 95  | (1/16 mm)
  - % Sand: 5  | (1/16 - 1 mm)
  - % Gravel: ______ |
  - % Cobbles: ______ |
  - % Silica Glass: ______ |

- **Color:** Munsell Color Chart #: ______ |

- **Redox Boundary:** Present? YES  | NO
  - If present -- Depth Below Sediment Surface (inches): 6.25 |

- **Odor:** None  | Hydrogen sulfide

**Amphipods:**

Debris (wigs/leaves): ______ |

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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**Photo Numbers:** 100-6249  |  **Time:** 0949

**Sediment (SE) Sample ID:** 56-6-B5  |  **Time:** 1244  |  **# Containers:**  |  **Volume:**  

**Duplicate SE Sample ID:**  |  **Time:**  |  **# Containers:**  |  **Volume:**  

**Split SE Samples (EP/NPS/OT):**  |  **Time:**  |  **# Containers:**  |  **Volume:**  

**Pore Water (PW) Sample ID:** PW-6-5B  |  **Time:** 1226  |  **# Containers:**  |  **Volume:**  

Sample Lead Initials:  |  **Date:** 9/24/13  |  Field Supervisor Initials:  |  **Date:** 9/25/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36319189</th>
<th>Station Identifier: 6-B5</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
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</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1004</td>
</tr>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Water Depth (feet)</td>
<td>550</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>10</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

Sample Location:
EASTING: 411005.48
NORTHING: 533733.71

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %
Description:

pH of Sediment in Sampler: 5.15
Description:

Sediment Characteristics
Type: % Silt (1/16 mm) % Sand (1/16 - 2 mm)
% Gravel % Cobbles % Silica Glass

Color: Munsell Color Chart #:
Description:
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods: tubes: macrophytes:
Debris (twigs/leaves): Other:

Sample Collected Using
Van Veen Edman Ponder Shovel

Photo Numbers (see Photo Log for descriptions)
Sediment in Grab: 104-025-3
Homogenized Sample:
Other:
Time: 10:13

Sediment (SE) Sample ID: SE-B5 Time: 12:44
# Containers: Volume: %

Duplicate SE Sample ID: Time: # Containers: Volume: %

Split SE Samples (EPA/NPS): Time:
# Containers: Volume: %

Pore Water (PW) Sample ID: PW-B5 Time: 12:20
# Containers: Volume: %

Sample Lead Initials: MC Date: 9/24/13
Field Supervisor Initials: Date: 9/5/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
### Sediment/Porewater Sampling Forth
**Upper Columbia River RI/FS**
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310188</th>
<th>Station Identifier: 6-B5</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 55.6</td>
</tr>
<tr>
<td>Drop #</td>
<td>Sampler Penetration (inches): 10.4</td>
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<tr>
<td>Angle (&lt; 5°max)</td>
<td>Cultural Resources Observed? No</td>
</tr>
</tbody>
</table>

**Sample Location:**
- **EASTING:** 411004.63 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 5333748.87

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

**Porewater**
- Cumulative Percent of Porewater Syringe filled: 98% **Accepted**
- pH of Sediment in Sampler: 8.03

**Sediment Characteristics**
- **Type:** % Silt (1/16 mm)
- **Munsell Color Chart #:** 5Y 4/2
- **Description:** OLIVE GREEN

**Amphipods:**
- **Debris (twigs/leaves):**
- **Tubes:**
- **Other:**

**Macrophytes:**
- **Stratified sediment:** Yes
- **Sheen Present:** Yes

**Sample Collected Using**
- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

**Photo Numbers 's**
- **Time:** 10:29
- **Time:** 13:13

**Sediment (SE) Sample ID:** 6-B5 Time: 1244
- **# Containers:** 7
- **Volume:** 100/50%

**Duplicate SE Sample ID:**
- **Time:**
- **# Containers:**
- **Volume:**

**Split SE Samples (EPAM/PSCT):**
- **Time:**
- **# Containers:** 1
- **Volume:** 20%

**Pore Water (PW) Sample ID:**
- **Time:**
- **# Containers:** 3
- **Volume:** 100%

**Sample Lead Initials:** MU Date: 9/24/13
- **Field Supervisor Initials:** ON Date: 9/25/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
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<thead>
<tr>
<th>Photo ID</th>
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<tbody>
<tr>
<td>106-0238</td>
<td>08:26</td>
<td>Station ID</td>
</tr>
<tr>
<td>106-0239</td>
<td>08:50</td>
<td>WEST FROM SHORE</td>
</tr>
<tr>
<td>106-0240</td>
<td>08:50</td>
<td>EAST FROM STATION</td>
</tr>
<tr>
<td>106-0241</td>
<td>08:51</td>
<td>SOUTH FROM STATION</td>
</tr>
<tr>
<td>106-0242</td>
<td>08:59</td>
<td>API Drop 1 bad grass</td>
</tr>
<tr>
<td>106-0243</td>
<td>09:26</td>
<td>API Drop 2 accepted</td>
</tr>
<tr>
<td>106-0244</td>
<td>09:28</td>
<td>Sediment in scoop</td>
</tr>
<tr>
<td>106-0245</td>
<td>09:30</td>
<td>CRAYFISH IN SAMPLE</td>
</tr>
</tbody>
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# Photo Log
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 6-B5</th>
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<tbody>
<tr>
<td>Date: 9/24/13</td>
<td>Vessel: TA-HOMA</td>
</tr>
<tr>
<td>Camera Serial #: 527 526601</td>
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<table>
<thead>
<tr>
<th>Photo ID: 106-0246</th>
<th>Time: 0431</th>
<th>Photographer: VEITAR</th>
<th>Description: Organic layer @ 6&quot;</th>
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</thead>
<tbody>
<tr>
<td>Photo ID: 106-0247</td>
<td>Time: 0945</td>
<td>Photographer: VEITAR</td>
<td>Description: API Deep 3 organ overlying water</td>
</tr>
<tr>
<td>Photo ID: 106-0248</td>
<td>Time: 0949</td>
<td>Photographer: VEITAR</td>
<td>Description: SEDIMENT IN GRAB</td>
</tr>
<tr>
<td>Photo ID: 106-0249</td>
<td>Time: 0952</td>
<td>Photographer: VEITAR</td>
<td>Description: CLAY Sediment (layer)</td>
</tr>
<tr>
<td>Photo ID: 106-0250</td>
<td>Time: 0954</td>
<td>Photographer: VEITAR</td>
<td>Description: WORM IN SEDIMENT</td>
</tr>
<tr>
<td>Photo ID: 106-0251</td>
<td>Time: 1009</td>
<td>Photographer: VEITAR</td>
<td>Description: OVERLYING WATER</td>
</tr>
<tr>
<td>Photo ID: 106-0252</td>
<td>Time: 1011</td>
<td>Photographer: VEITAR</td>
<td>Description: SEDIMENT IN GRAB</td>
</tr>
<tr>
<td>Photo ID: 106-0253</td>
<td>Time: 1013</td>
<td>Photographer: VEITAR</td>
<td>Description: MATERIAL IN SCOOP</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: KH 
Date: 9/25/13

Sample Lead Initials: NN 
Date: 9/24/13

**URS**
### Photo Log
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>106-0254</td>
<td>1029</td>
<td>Vetter</td>
<td></td>
<td>SEDIMENT IN SCOOP</td>
</tr>
<tr>
<td>106-0255</td>
<td>1032</td>
<td>Vetter</td>
<td>STRAIGHT</td>
<td>SEDIMENT IN SCOOP</td>
</tr>
<tr>
<td>106-0256</td>
<td>1101</td>
<td>Vetter</td>
<td></td>
<td>Collecting core in water</td>
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<tr>
<td>106-0257</td>
<td>1301</td>
<td>Vetter</td>
<td></td>
<td>Signed chain missing sample time + sampler</td>
</tr>
<tr>
<td>106-0258</td>
<td>1304</td>
<td>Vetter</td>
<td></td>
<td>Signed chain missing sampler</td>
</tr>
<tr>
<td></td>
<td>1307</td>
<td>Vetter</td>
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<td>Signed chain - complete</td>
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<td>106-0260</td>
<td>1313</td>
<td>Vetter</td>
<td></td>
<td>Homogenized sample in bucket</td>
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</tbody>
</table>

**Project:** 36310189  
**Station Identifier:** 6-13

**Camera Serial #:** S275264601

**Date:** 9/24/13  
**Vessel:** JAGUSA

**Field Supervisor Initials:** J.S  
**Date:** 9/25/13

**Sample Lead Initials:** MW  
**Date:** 9/24/13

**URS**
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9/24/13
Sampling Crew: WEITZ/RAIM/KELLY
EPA Observer: LaTIER
Arrival Time: 1345
River Stage:
Water Surface Elev. (ft):
Water Surface Elevation Source:

Station Identifier: C-C3
Vessel:
Vessel Crew: TRUEAUL SCHMIDT/HAYS
C.R. Observer: HUBERT
Departure Time:

Weather Conditions Upon Arrival
Temp (°F):
Wind (mph):
Clouds/Precipitation:

Site Information:

Weather Conditions Upon Arrival
Temp (°F):
Wind (mph):
Clouds/Precipitation:

Site Information:

Boat Position: (Powered) (Anchored)
River Mile: 66
River Current: (Swift) (Eddy) (Calm) (Ripple)
Boat Traffic:

Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes (No)
Was Vegetation Removed: Yes (No)
Notable shore surface features:
Bench West, Dry Inlet.

Sample Location Photo IDs:
(see Photo Log for descriptions)

Photo ID: 106-0261 Time: 1347
Camera ID: 527506601
Photo ID: 106-0261 Time: 1347

General Notes:

C.R. - cultural resources

Field Supervisor Initials: WH Date: 9/25/13
Sample Lead Initials: MV Date: 9/24/13
### Sediment/Porewater Sampling Forth
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>6-C3</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>0 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>48.2</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time: 1348</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>10</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>No Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>410708.89 (NAD_83_UTM_Zone_11_North) 5333769.16</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater:**

- Cumulative Percent of Porewater Syringe filled: 100%
- pH of Sediment in Sampler: 8.90
- Description:

**Sediment Characteristics:**

- Type: % Silt 99 (<1/16 mm) % Sand 1 (1/16 - 2 mm) % Gravel 0 % Cobble 0 % Silica Glass: 0
- Color: Munsell Color Chart #: S7 Y 1/2
- Redox Boundary: Yes No
- Odor: None Hydrogen sulfide

**Sample Collected Using:**

- Amphipods:
- Debris (twigs/leaves):
- Other:

**Photo Numbers:**

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
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<tbody>
<tr>
<td>SE-1-C2</td>
<td>1557</td>
<td>4</td>
<td>1.45%</td>
</tr>
<tr>
<td>SE-1-B2</td>
<td>1559</td>
<td>3</td>
<td>1.0%</td>
</tr>
<tr>
<td>PW-1-B2</td>
<td>1583</td>
<td>3</td>
<td>1.0%</td>
</tr>
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</table>

**Sample Lead Initials:** MM  Date: 9/24/13  Field Supervisor Initials: 104  Date: 1/31/13

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

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<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>58-6-C3</th>
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<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time: 1513</td>
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<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers: 5</td>
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<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time: 1450</td>
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<tr>
<td># Containers: 3</td>
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**Sample ID Formal:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>106-0261</td>
<td>1347</td>
<td>VETER</td>
<td>WEST</td>
<td>SHORE + DRY</td>
</tr>
<tr>
<td>106-0262</td>
<td>1347</td>
<td>VETER</td>
<td>EAST</td>
<td>EAST SHORE</td>
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<tr>
<td>106-0263</td>
<td>1347</td>
<td>VETER</td>
<td>SOUTH</td>
<td>RIVER + SHORE</td>
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<td>106-0264</td>
<td>1348</td>
<td>VETER</td>
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<td>STATION ID</td>
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<tr>
<td>106-0265</td>
<td>1353</td>
<td>VETER</td>
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<td>GRAB w/ remaining Sandy</td>
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<td>106-0266</td>
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<td>GRAB AFTER SIPHONING</td>
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<td>106-0267</td>
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<td>106-0268</td>
<td>1440</td>
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<td>PORE WATER COLLECTION</td>
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# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
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<th>Station Identifier:</th>
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<tbody>
<tr>
<td>36310189</td>
<td>6-C3</td>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Vessel:</th>
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<tbody>
<tr>
<td>9/24/13</td>
<td>TAHOMA</td>
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<tbody>
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<tr>
<td>HOMOGENIZED SEDIMENT.</td>
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<tr>
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Field Supervisor Initials:  
JOA  
Date: 9/24/13

Sample Lead Initials:  
MW  
Date: 9/24/13

**URS**
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9/25/13
Sampling Crew: VEITZEL/RAPP/KELLY
EPA Observer: LATIER
Arrival Time: 1530

Station Identifier: 6-R3
Vessel: TAHOMA
Vessel Crew: TROJAN/SCHNEIDER/HURLEY
C.R. Observer: HUBERT
Departure Time: 1820

River Stage:
Water Surface Elev. (ft): 
Water Surface Elevation Source: 

Weather Conditions Upon Arrival
Temp (°F): 60°
Wind (mph): 10-12
Clouds/Precipitation: Partly Sunny

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 
Water Surface: (Calm) (Small Waves) (Unkown)
Surface Vegetation Present: Yes (No)
Was Vegetation Removed: Yes (No)

Boat Traffic: SIERRA

Notable shore surface features:
(rocks, outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Steep slopes to beach (cracly on west)

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
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<tbody>
<tr>
<td>102-0111</td>
<td>1543</td>
<td></td>
</tr>
<tr>
<td>102-0112</td>
<td>1544</td>
<td></td>
</tr>
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</table>

General Notes:

- Good grabs # 2-5.

C.R. - cultural resources
Field Supervisor Initials: MW
Date: 9/29/13
Sample Lead Initials: MW
Date: 9/25/14
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 38310189
Station Identifier: 6-23
Anchor Point (max 3) 0 2 3
Water Depth (feet): 96.5'
Drop # 2 3 Cast Time 1545
Sampler Penetration (inches): 14+
Angle (< 5' max) Yes No
Cultural Resources Observed? No Yes
Sample Location: EASTING: 410 910.25 (NAD_83_UTM_Zone_31_North) NORTHING: 5 336 584.66

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 8 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: Not Taken

Sediment Characteristics
Type: % Silt (≤1/16 mm) 100
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris (twigs/leaves):
Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Sample in Grab Sediment Homogenized Sample
Other:
Photo Numbers 's (see Photo Log for descriptions)
Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPSCCCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials MW Date: 9/29/13
Field Supervisor Initials LH Date: 9/29/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Forth
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 38310189
Station Identifier: 6-R3

Anchor Point (meter): 1 2 3
Drop #: 1 2 3 Cast Time 1400
Angle (<5 max): Yes No
Water Depth (feet): 106'
Sampler Penetration (inches): 13"
Cultural Resources Observed?: No Yes

Sample Location: 410915.21 (NAD 83_UTM_zone_11_North)
EASTING: 5336587.70
NORTHING: 5336587.70

Sample Acceptance Criteria:
1. Sampler overfilled or sediment protruded against top of sampler? Yes No
2. Overlying water prevent? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __% Accepted Rejected

pH of Sediment in Sampler: 8.24 su

Sediment Characteristics
Type: % Silt (1/16 mm) 100
% Sand (1/16 - 2 mm) 0
% Gravel 0
% Cobble 0
% Silica Glass 0

Color: Munsell Color Chart #: 10 Y 3/2

Redox Boundary: Present? Yes No
Boundary: If present -- Depth Below Sediment Surface (inches): 0.25"

Odor: None Hydrogen sulfide

Amphipods: No
Debris/leaves: No
Tubes: No
Macrophytes: No

Sample Collected Using:
Van Veen
Eckman
Ponar
Shovel

Sediment (SE) Sample ID: 6-R3 Time: 1744
# Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA NPS/6T): # Containers: Volume: %
Pore Water (PW) Sample ID: 6-R3 Time: 123
# Containers: Volume: %

Sample Lead Initials: MW Date: 9/25/13 Field Supervisor Initials: NK Date: 9/27/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
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<th>Station Identifier:</th>
<th>123</th>
<th>6-R3</th>
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</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1 2 3</th>
<th>Water Depth (feet):</th>
<th>103.2</th>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>1 2 3</th>
<th>Cast</th>
<th>Time</th>
<th>1624</th>
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<table>
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<tr>
<th>Angle (&lt; 5' max)</th>
<th>Yes</th>
<th>No</th>
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<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>EASTING:</th>
<th>410594.27</th>
<th>NAD_83_UTM_zone_11 North</th>
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<tbody>
<tr>
<td></td>
<td>NORTHING:</td>
<td>5336540.14</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES  NO
2. Overlying water present? YES  NO
3. Overlying water excessively turbid? YES  NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES  NO
5. Desired penetration depth (4 to 6 inches) achieved? YES  NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upset retrieval)? YES  NO
7. Sample is: Accepted  Rejected

Porewater:

Cumulative Percent of Porewater Syringe filled: 50%

pH of Sediment in Sampler: 5.47

Sediment Characteristics:

- Type: % Silt: 100 (<1/16 mm)
- % Sand: 0 (1/16 - 2 mm)
- % Gravel: 0
- % Cobbles: 0
- % Silica Glass: 0

Color: Munsell Color Chart: 10 YR/2

Redox Boundary: Present? YES  NO

Odor: None  Hydrogen sulfide

Porewater:

Cumulative Percent of Porewater Syringe filled: 50%

pH of Sediment in Sampler: 5.47

Sediment Characteristics:

- Type: % Silt: 100 (<1/16 mm)
- % Sand: 0 (1/16 - 2 mm)
- % Gravel: 0
- % Cobbles: 0
- % Silica Glass: 0

Color: Munsell Color Chart: 10 YR/2

Redox Boundary: Present? YES  NO

Odor: None  Hydrogen sulfide

Sample Collected Using:

- Van Veen
- Eckman
- Ponar
- Shovel

Photo Numbers:

- Sediment In Grab: 1625
- Homogenized Sample: 122-002-001
- Other: 122-002-001

Sediment (SE) Sample ID: SE-6-R3  Time: 1744

Duplicate SE Sample ID:  Time: 1744

Split SE Samples (EPA/USGS/OT):  # Containers: Volume: %

Pore Water (PW) Sample ID: PW-6-R3  Time: 1735

Duplicate PW Sample ID:  Time: 1735

Split PW Samples (EPA/USGS/OT):  # Containers: Volume: %

Sample Lead Initials: MW  Date: 9/25/13

Field Supervisor Initials: AD  Date: 9/30/13
### Sediment/Porewater Sampling Fortii
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310/89</th>
<th>Station Identifier:</th>
<th>6-R3</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>2</td>
<td>Water Depth (feet):</td>
<td>102.5 ± 1'</td>
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<tr>
<td>Drop #</td>
<td>2</td>
<td>Sampler Penetration (inches):</td>
<td>12.5</td>
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<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 410 910.19, NORTING: 533 6556.61</td>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:
1. Sampler overfilled or sediment prested against top of sampler? YES
2. Overlying water present? YES
3. Overlying water excessively turbid? YES
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES
5. Desired penetration depth (4 b 6 inches) achieved? NO
6. A/½ sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? NO
7. Sample is: Accepted

#### Pore Water
- Cumulative Percent of Porewater Syringe filled: %
- Accepted
- Rejected

#### pH of Sediment in Sampler: 7.97

#### Sediment Characteristics
- **Type:**
  - % Silt: 100 (<1/16 mm)
  - % Sand: 0 (1/16 - 2 mm)
  - % Gravel: 0
  - % Cobbles: 0
  - % Silica Glass: 0
- **Color:** Nile or Color Chart #:
  - Description:
- **Redox Boundary:** Present? Yes
- **Sediment Surface (inches):** 0.25
  - If present -- Depth Below:
- **Odor:** None
  - Other: Hydrogen Sulfide slight

#### Amphipods:
- Debris (weeds/leaves): Yes
- Other: No
- Macrophytes: No

#### Sample Collected Using:
- Van Veen
- Eckman
- Ponar
- Shovel

#### Sediment in Grab:
- Sediment in Grab: 102-0149
- Homogenized Sample: 102-0123
- Other: Scoop 102-0120

#### Photo Numbers:
- Time: 1041
- Time: 1734

#### Sediment (SE) Sample ID: SF-6-R3 Time: 1744
- # Containers: 20
  - Volume:

#### Duplicate SE Sample ID:
- Time: 1041
- # Containers: 20
  - Volume:

#### Split SE Samples (EPANSCOTT): SF-6-R3
- # Containers: 20
  - Volume:

#### Pore Water (PW) Sample ID: PW-6-R3 Time: 1733
- # Containers: 20
  - Volume:

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: m-w
Date: 9/25/13
Field Supervisor Initials: 204
Date: 9/27/13

---

URS
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<tbody>
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<td>Anchor Point (m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td>1 (2) 3</td>
<td>Water Depth (feet):</td>
<td>94.3'</td>
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<tr>
<td>Drop #</td>
<td>1 (2) 3</td>
<td>Cast Time</td>
<td>16:46</td>
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<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
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<td>Sample Location:</td>
<td>410892.85</td>
<td>NAD83_UTM_Zone_11_North</td>
<td>5330578.13</td>
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</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment projected against top of sampler? **ACCEPTED**
2. Overlying water present? **REJECTED**
3. Overlying water excessively turbid? **REJECTED**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? **ACCEPTED**
5. Desired penetration depth (4 to 6 inches) achieved? **REJECTED**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upth retrieval)? **REJECTED**
7. Sample is: **ACCEPTED**

**Porewater:**

Cumulative Percent of Porewater Syringes filled: **100%**

pH of Sediment in Sampler: **7.90**

**Sediment Characteristics**

<table>
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<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
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Color: Munsell Color Chart #: 10Y 3/2

Redox Boundary: If present -- Depth Below Sediment Surface (inches): 0.25"

Odor: None

**Ampliducts:**

Debris (wiggs/leafs): **YES**

**Tubes:**

Other: **NO**

Macrophytes: **NO**

**Sample Collected Using**

<table>
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<th>Sample</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other</th>
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<tr>
<td>Van Veen</td>
<td>102-0122</td>
<td>102-0123</td>
<td>102-0121</td>
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<tr>
<td>Eckman</td>
<td>102-0122</td>
<td>102-0123</td>
<td>102-0121</td>
</tr>
<tr>
<td>Ponar</td>
<td>102-0122</td>
<td>102-0123</td>
<td>102-0121</td>
</tr>
<tr>
<td>Shovel</td>
<td>102-0122</td>
<td>102-0123</td>
<td>102-0121</td>
</tr>
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</table>

Sediment (SE) Sample ID: **6-R3**

Time: **17:04**

# Containers: **9**

Volume: **4100 mL**

Duplicate SE Sample ID: __________

Time: __________

# Containers: __________

Volume: __________

Split SE Samples (EPA/NPS/CCT): __________

Time: __________

# Containers: __________

Volume: __________

Pore Water (PW) Sample ID: **6-R3**

Time: **17:33**

# Containers: **3**

Volume: **1000 mL**

Sample Lead Initials: **M/W**

Date: **9/25/13**

Field Supervisor Initials: **CJH**

Date: **9/27/13**

---

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2
<table>
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<tr>
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<td>1542</td>
<td>1543</td>
<td>JR</td>
<td>WEST</td>
<td>Shore to West</td>
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<tr>
<td>102-0110</td>
<td></td>
<td></td>
<td>MV</td>
<td></td>
<td></td>
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<td>MW</td>
<td>EAST</td>
<td>Shore to East</td>
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<td>102-0112</td>
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<td>102-0113</td>
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<td>1544</td>
<td>MV</td>
<td>North South</td>
<td>Shore South Hot 6-R3</td>
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<td>102-0115</td>
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<td>1612</td>
<td>MV</td>
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<td>MV</td>
<td>API Drop 3</td>
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# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
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<th>Station Identifier: C-R3</th>
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<tbody>
<tr>
<td>Date: 9/25/13</td>
<td>Vessel: TAHOMA</td>
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<tr>
<td>Camera Serial #: TA-2</td>
<td>PENTRY OPTREX</td>
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<th>Photo Orientation</th>
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<td>102-0117</td>
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<td>MW</td>
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<td>SEDIMENT IN SCOOP</td>
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<td>102-0118</td>
<td>16:29</td>
<td>MW</td>
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<td>Inadvertent photo</td>
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<td>102-0119</td>
<td>16:41</td>
<td>MW</td>
<td>Rolling</td>
<td>AP2 Drop 1 in Trap</td>
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<td>16:42</td>
<td>MW</td>
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<td>SEDIMENT IN SCOOP</td>
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<td>MW</td>
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<td>SEDIMENT IN AP2 DROP 2</td>
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<td>MW</td>
<td></td>
<td>Homogenized Material SE-C-R3</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: MW  
Date: 9/29/13  
Sample Lead Initials: MW  
Date: 9/29/13
Photo Log
Upper Columbia River RIFS
2013 Phase 2 Sediment Study

Project: 36310109
Date: 9/25/13
Camera Serial #: TA-2 PENTAX OPTIO W10

Station Identifier: 6-R3
Vessel: TAHOMA

Photo ID: 102-0125 Time: 1802
Photographer: MW
Photo Orientation:
Description: NPS C-O-C

Photo ID: 102-0126 Time: 1802
Photographer: MW
Photo Orientation:
Description: NPS C-O-C

Field Supervisor Initials: D4 Date: 9/25/13
Sample Lead Initials: MW Date: 9/25/13

URS
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 7-B-3
Date: 9/13/13
Vessel: TTHOMA
Sampling Crew: VICTOR/YOUNG/KELLY
Vessel Crew: TRUDIN/HINZ/FURLAN
EPA Observer: CAMPBELL (CH)
C.R. Observer: FLINT
Arrival Time: 0831
Departure Time: 1057
River Stage:
Water Surface Elev. (ft): 1280.25
Weather Conditions Upon Arrival
Temp (°F): 70
Wind (mph): 5
Clouds/Precipitation: CLEAR

Water Surface Elevation Source:
Columbia Dispatch

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No
Boat Traffic: SUPPORT BOAT
Notable shore surface features:
(cave to east, east shore tread)

Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID:
Photo ID: Time: Photo ID: Time:
Photo ID: Time: Photo ID: Time:

General Notes:
Gave 1 Bioassay to Dan MacDonald
4 BA buckets 80% (4 gallons)
1 Chemistry 100%

C.R. - cultural resources
Field Supervisor Initials Date: 9/16/13
Sample Lead Initials Date: 9/13/13

URS
**Sediment/Porewater Sampling Form**  
**Upper Columbia River R/F**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310160</th>
<th>Station Identifier:</th>
<th>7-B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>94.0</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>05:46</td>
</tr>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

**Sample Location:**
- EASTING: 398694.12  
- NORTHING: 531535.48  
- (NAD 83 UTM Zone 11_North)

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES | NO
2. Overlying water present?  
   - YES | NO
3. Overlying water excessively turbid?  
   - YES | NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES | NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES | NO
6. Any sight of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES | NO
7. Sample is:  
   - Accepted | Rejected

**Porewater**:  
- Cumulative Percent of Porewater Syringe filled: 0%  
- Accepted | Rejected

**pH of Sediment in Sampler**:  
- 9.15  
- Description: No recovery

**Sediment Characteristics**
- Type:  
  - % Silt: 100 (<1/16 mm)  
  - % Sand:  
  - % Gravel:  
  - % Cobble:  
  - % Silica Glass:  
- Color:  
  - Munsell Color Chart #: 10Y 5/2  
  - Description: Grayish olive
- Redox Boundary:  
  - Present?: Yes  
  - No
- Occur:  
  - None  
  - Hydrogen sulfide
  - Other:

**Amphipods**:  
- (Doric, wgs/leaves): Yes | No
- Sample Collected Using:  
  - Van Veen  
  - Eckman  
  - Ponar  
  - Shovel

**Sample Lead Initials**: MW  
- Date: 9/13/13  
- Field Supervisor Initials: DRH  
- Date: 9/16/13

**URS**
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>7-B3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>94</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>923</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:**

<table>
<thead>
<tr>
<th>EASTING:</th>
<th>NORTHING:</th>
</tr>
</thead>
<tbody>
<tr>
<td>391697.22</td>
<td>531541.37</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.75</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
<th>Color: Munsell Color Chart #:</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>104 5/2</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Description: **Graysish olive**

**Sediment in Grab:**

**Homogenized Sample:**

<table>
<thead>
<tr>
<th>Photo Number’s (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-0920</td>
</tr>
</tbody>
</table>

**Other:**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE-7-B3</td>
<td>09:20</td>
<td>5</td>
<td>4-80/100%</td>
</tr>
</tbody>
</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Sample Lead Initials:**

<table>
<thead>
<tr>
<th>4-Bare BA 1 given tribes</th>
</tr>
</thead>
</table>

**Field Supervisor Initials:**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/13/13</td>
<td>7/16/13</td>
</tr>
</tbody>
</table>

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 7-B3

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 0957
Angle (< 5°max) Yes No
Water Depth (feet): 95.1'
Sampler Penetration (inches): 10.1'
Cultural Resources Observed? No Yes
Sample Location: EASTING: 398691.01 NORTHING: 5315740.09
NAD_83_UTM_ZONE_11_North

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 0% Accepted Rejected
pH of Sediment in Sampler: 5.10 su Description: No recovery

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>(1/16-2 mm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Color:</td>
<td>Munsell Color Chart # 10Y5/2</td>
<td>Description: Grayish Olive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment Surface (inches):</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: Yes Debris (twigs/leaves): grass in stream Other: alone
Tubes: Sample Collected Using: Van Veen Sample Collecting Date: 9/1/13
Macrophytes: No

Sediment (SE) Sample ID: SE-1-7-B3 Time: 10:20 # Containers: 3/48 Volume: 4/00 4/00 %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Photo Log

#### Upper Columbia River RI/FS

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Project: 36310189</th>
<th>Station Identifier: 7-B3</th>
<th>Vessel: RV Tahoma</th>
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</thead>
<tbody>
<tr>
<td>101-0017</td>
<td>0832</td>
<td>9/13/13</td>
<td>527506601</td>
<td></td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
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<tr>
<td>101-0021</td>
<td>0837</td>
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<td></td>
</tr>
<tr>
<td>101-0022</td>
<td>0850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101-0024</td>
<td>0901</td>
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<td></td>
</tr>
<tr>
<td>101-0025</td>
<td>0901</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Photo ID</td>
<td>Time</td>
<td></td>
<td></td>
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<tr>
<td>101-0020</td>
<td>0837</td>
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<tr>
<td>Photo ID</td>
<td>Time</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>101-0025</td>
<td>0901</td>
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<td></td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**Description:**

- **Station ID**: 
- **Sample Location**
- **Sample in Van Veen - grab no. 1**
- **Sediment accumulated on porewater syringe filter**
- **Van Veen with new modification of fins w/ holes drilled to prevent overpenetration**

**Field Supervisor Initials:** AMH  Date: 9/13/13

**Sample Lead Initials:** MW  Date: 9/13/13

**URS**
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-0027</td>
<td>0932</td>
<td>M4</td>
<td>NA</td>
<td>Sample in van veen grab no. 2</td>
</tr>
<tr>
<td>101-0032</td>
<td>1014</td>
<td>M4</td>
<td>NA</td>
<td>Homogenizing Sample</td>
</tr>
<tr>
<td>101-0028</td>
<td>0936</td>
<td>M4</td>
<td>NA</td>
<td>Sediment in lexan tub</td>
</tr>
<tr>
<td>101-0033</td>
<td>1019</td>
<td>M4</td>
<td>NA</td>
<td>Homogenized Sample</td>
</tr>
<tr>
<td>101-0029</td>
<td>0954</td>
<td>M4</td>
<td>NW</td>
<td>Pleasure boat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101-0030</td>
<td>1001</td>
<td>M4</td>
<td>NA</td>
<td>Sample in van veen grab no. 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>7B-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>9/2/13</td>
<td>Vessel:</td>
<td>THORNA</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>VETER/YOUNG/KELLY</td>
<td>Vessel Crew:</td>
<td>HINZ/TRUNDAL/FRANCES</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>IRVING/SHEPARD</td>
<td>C.R. Observer:</td>
<td>CHIPPELES FLEET</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>0923</td>
<td>Departure Time:</td>
<td>1001</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
<td>Weather Conditions Upon Arrival</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td>1980.05</td>
<td>Temp (°F):</td>
<td>75°</td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td>USBR</td>
<td>Wind (mph):</td>
<td>&lt; 2 mph</td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
<td>Clouds/Precipitation:</td>
<td>CLEAR</td>
</tr>
<tr>
<td>Boat Position:</td>
<td>Powered</td>
<td>River Current:</td>
<td>Swift</td>
</tr>
<tr>
<td>River Mile:</td>
<td></td>
<td>(Eddie) (Calm) (Ripple)</td>
<td></td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm)</td>
<td>Boat Traffic:</td>
<td>Support boat</td>
</tr>
<tr>
<td>Small Waves:</td>
<td>( Choppy )</td>
<td>Notable shore surface features:</td>
<td></td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
<td>(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
<td></td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location Photo IDs: (see Photo Log for descriptions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camera ID:</td>
<td></td>
<td>Photo ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>Time:</td>
<td>Photo ID:</td>
<td>Time:</td>
</tr>
<tr>
<td>General Notes:</td>
<td>Uskare beach of low plateau</td>
<td>5 - dark rocky cliffs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W - large white granite outcrop (NW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E - River</td>
<td>8&quot; - silty</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-10&quot; hard Clay</td>
<td>10-11&quot; pebbly coarse sand</td>
<td></td>
</tr>
<tr>
<td>C.R. - cultural resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Supervisor Initials:</td>
<td>NK</td>
<td>Date:</td>
<td>9/12/13</td>
</tr>
<tr>
<td>Sample Lead Initials:</td>
<td>MV</td>
<td>Date:</td>
<td>9/12/13</td>
</tr>
</tbody>
</table>
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>7B-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet)</td>
<td>76.5</td>
</tr>
<tr>
<td>Drop #</td>
<td>2 3</td>
<td>Cast Time</td>
<td>0944.4</td>
</tr>
<tr>
<td>Angle (&lt; 5’max)</td>
<td>Yes No</td>
<td>Sampler Penetration (inches)</td>
<td>11.4</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING</td>
<td>38677870</td>
<td>NORTING</td>
<td>5303882.69</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES NO**
2. Overlying water present? **YES NO**
3. Overlying water excessively turbid? **YES NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES NO**
5. Minimum sampler penetration depth (8 inches) obtained? **YES NO**
6. Any sign of sediment lost (incomplete closure, penetration at angle, blinding upon retrieval)? **YES NO**
7. Sample is: **Accepted Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>8.64</td>
<td>su</td>
</tr>
<tr>
<td>Description</td>
<td>No recovery/either stone</td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>1</td>
<td>dark gray</td>
<td>5Y 4/1</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes</th>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>Homogenized Sample:</td>
</tr>
</tbody>
</table>

**Photo Numbers 'a'**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE-7B-C3</td>
<td>1025</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
</tr>
</thead>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Pore Water Lead initials</th>
<th>Date: 9/12/13</th>
<th>Field Supervisor Initials:</th>
</tr>
</thead>
</table>

---

Sample ID Format
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-0001</td>
<td>08:27</td>
<td>MV (Mark Vetter)</td>
<td>NA</td>
<td>Sample location ID</td>
</tr>
<tr>
<td>100-0005</td>
<td>09:57</td>
<td>MV</td>
<td>North</td>
<td>Shore features</td>
</tr>
<tr>
<td>100-0002</td>
<td>09:56</td>
<td>MV (Melanie Young)</td>
<td>West</td>
<td>Location shore features of FB-C3</td>
</tr>
<tr>
<td>100-0003</td>
<td>09:56</td>
<td>MV</td>
<td>South</td>
<td>Shore features of Sample FB-C3</td>
</tr>
<tr>
<td>100-0007</td>
<td>10:16</td>
<td>MV</td>
<td>NA</td>
<td>Sample scooped in Lexan tub</td>
</tr>
<tr>
<td>100-0004</td>
<td>09:56</td>
<td>MV</td>
<td>East</td>
<td>Shore features</td>
</tr>
<tr>
<td>100-0008</td>
<td>09:12</td>
<td>MV</td>
<td>NA</td>
<td>Excess sediment grab</td>
</tr>
</tbody>
</table>
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>J-C</th>
<th>Vessel:</th>
<th>TAFEIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>9/16/13</td>
<td>Vessel Crew:</td>
<td>TRUDEAU/HIN2/FURULIE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>0830</td>
<td>Departure Time:</td>
<td>0945</td>
<td></td>
<td></td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
<td>Weather Conditions Upon Arrival</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td></td>
<td>Temp (°F): 68.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td></td>
<td>Wind (mph): 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
<td>Clouds/Precipitation: Partly Sunny</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boat Position:</td>
<td>Powered (Anchored)</td>
<td>River Current: (Swift) (Eddy) (Calm) (Ripple)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>River Mile:</td>
<td>648</td>
<td>Boat Traffic: Support boat-Mazama</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm) (Small Waves) (Choppy)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Vegetation Present: Yes No</td>
<td></td>
<td>Tiegon Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was Vegetation Removed: Yes No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notable shore surface features: (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td>(see Photo Log for descriptions)</td>
<td>Camera ID: 527504601</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo ID:</td>
<td>102-0052</td>
<td>Time: 0855</td>
<td>Photo ID:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo ID:</td>
<td>102-0057</td>
<td>Time: 0855</td>
<td>Photo ID:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| General Notes:  | - good grab first try.  
                 - slight breeze <10mph kicked up 
                 after reaching station  
                 - Photos above of shore features |
| C.R. - cultural resources |
| Field Supervisor Initials: | 934        | Date: 9/16/13     |
| Sample Lead Initials: | MW        | Date: 9/16/13     |

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>7-C1</td>
</tr>
<tr>
<td>Anchor Point (max 3):</td>
<td>0 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>96.5</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3 Cast Time: 0653</td>
</tr>
<tr>
<td>Angle (&lt; 5 max):</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>12</td>
</tr>
<tr>
<td>Cultural Resources Observed?:</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 396292.83 (NAD_83_UTM_Zone_11_North) NORTHING: 5319468.45</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? 
   - Accepted: Yes No
2. Overlying water present? 
   - Accepted: Yes No
3. Overlying water excessively turbid? 
   - Accepted: Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of chafing or sample washout? 
   - Accepted: Yes No
5. Desired penetration depth (4 to 6 inches) achieved? 
   - Accepted: Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? 
   - Accepted: Yes No
7. Sample le: 
   - Accepted: Yes No

Porewater:

Cumulative Percent of Porewater Syringe filled: 0 %

pH of Sediment in Sampler: 8.28

Sediment Characteristics

Type:
- % Silt: 100 (<1/16 mm)
- % Sand: 0 (1/16 - 2 mm)
- % Gravel: 0
- % Cobbles: 0
- % Silica Glass: 0

Goob: Munsell Color Chart #:
- Description: dark gray

Redox Boundary: Present? Yes No
- Depth Below Sediment Surface (inches): 0.5

Amphipods:
- Debris (wigs/leaves): PINE NEEDLES
- Tubes: Other:
- Macrophytes:

Stratified sediment: Yes NO

Sheen Present: Yes NO

Sample Collected Using:
- Van Veen
- Eckman
- Ponor
- Shovel

Photo Numbers:
- Sediment in Grab: 0914
- Homogenized Sample: 0913
- Other: 0909

Sediment (SE) Sample ID: 7-C1

Duplicate SE Sample ID: 

Split SE Samples (EPA/NPS/CCT): 

Pore Water (PW) Sample ID: 

Sample Lead Initials: MV

Date: 9/16/13

Field Supervisor Initials: 014

Date: 9/17/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
## Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA-0055</td>
<td>08:07</td>
<td>MS</td>
<td>-</td>
<td>Station ID on whiteboard</td>
</tr>
<tr>
<td>102-0059</td>
<td>09:06</td>
<td>MS</td>
<td>-</td>
<td>Porewater sample (unsuccessful)</td>
</tr>
<tr>
<td>IA-0056</td>
<td>08:55</td>
<td>MS</td>
<td>South</td>
<td>Shoreward</td>
</tr>
<tr>
<td>IA-0057</td>
<td>08:55</td>
<td>WS</td>
<td>North</td>
<td>Shoreward</td>
</tr>
<tr>
<td>IA-0058</td>
<td>08:56</td>
<td>MS</td>
<td>-</td>
<td>Sampler bucket w/ Sediment</td>
</tr>
<tr>
<td>IA-0060</td>
<td>09:09</td>
<td>MS</td>
<td>-</td>
<td>1/16 inch dense &amp; black burned layer</td>
</tr>
<tr>
<td>IA-0061</td>
<td>09:10</td>
<td>MS</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Project:** 36310189  
**Station Identifier:** 7-C1  
**Vessel:** Tahona MV/ARP/MS  
**Camera Serial #:** 527506601 Canon  
**Date:** 9/16/2013
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>102-0062</td>
<td>09:14</td>
<td>MS</td>
<td>-</td>
<td>pre-homogenized</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sediment in grain</td>
</tr>
<tr>
<td>102-0062</td>
<td>09:15</td>
<td>MS</td>
<td>-</td>
<td>Stiff clay</td>
</tr>
<tr>
<td>102-0064</td>
<td>09:17</td>
<td>MS</td>
<td>-</td>
<td>homogenized sediment</td>
</tr>
<tr>
<td>102-0065</td>
<td>09:21</td>
<td>MS</td>
<td>-</td>
<td>homogenized Sediment</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: KJH  Date: 9/17/13
Sample Lead Initials: AW  Date: 9/16/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study  

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: J-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 9/16/13</td>
<td>Vessel: THOMAS</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>Vessel Crew: TREASURE/HIND/FURUZE</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>CR. Observer: HUBERT</td>
</tr>
<tr>
<td>Arrival Time: 10:29</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>River Stage:</th>
<th>Weather Conditions Upon Arrival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Surface Elev. (ft):</td>
<td>Temp (°F):</td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td>Wind (mph): &lt;10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site Information:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat Position:</td>
<td>Wind (mph): &lt;10</td>
</tr>
<tr>
<td>(Powered) (Anchored)</td>
<td></td>
</tr>
<tr>
<td>River Mile: 649</td>
<td></td>
</tr>
<tr>
<td>River Current:</td>
<td></td>
</tr>
<tr>
<td>(Swift) (Eddy) (Calm) (Ripple)</td>
<td></td>
</tr>
<tr>
<td>Boat Traffic: SUPPORT BOAT</td>
<td></td>
</tr>
<tr>
<td>Water Surface: (Calm) (Small Waves) (Choppy)</td>
<td></td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Clouds/Precipitation: Partly Sunny</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td></td>
</tr>
<tr>
<td>Yes No</td>
<td></td>
</tr>
</tbody>
</table>

| Notable shore surface features: |                             |
| (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.) |                             |

<table>
<thead>
<tr>
<th>Sample Location Photo IDs:</th>
<th>Camera ID: 52756601</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo ID: 102-0077 Time: 1153</td>
<td>Photo ID: 102-0079 Time: 1153</td>
</tr>
<tr>
<td>Photo ID: 102-0078 Time: 1153</td>
<td>Photo ID: 102-0079 Time: 1153</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Notes:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment has hard layer on top. Cracked when close to van. Veem clessed.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C.R. - cultural resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Supervisor Initials</td>
</tr>
<tr>
<td>Date: 9/11/13</td>
</tr>
<tr>
<td>Sample Lead Initials</td>
</tr>
<tr>
<td>Date: 9/16/13</td>
</tr>
</tbody>
</table>
### Sediment/Porewater Sampling Form

**Upper Columbia River RIFS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>26310189</td>
<td>7-C-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>47'9&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Casr Time</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1033</td>
<td>47'9&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>NAD_83_UTM_Zone_11_North</th>
<th>UTM Zone 11 North</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>3972 70.49</td>
<td>17320065.49</td>
</tr>
<tr>
<td>NORTHING:</td>
<td></td>
<td>5320065.49</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted  
   - Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt: 90-95 (&lt;1/16 mm)</th>
<th>% Sand: 5-10 (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Munsell Color Chart #: 5Y 5/2</td>
<td>Description: Olive gray</td>
<td>Redox Boundary: Yes (if present -- Depth Below Sediment Surface (inches))</td>
<td>Odor: None</td>
<td>Hydrogen sulfide</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab: 102-0062</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time: 1647</td>
</tr>
<tr>
<td>Ponor</td>
<td>Homogenized Sample: 102-0073</td>
</tr>
<tr>
<td>Shore</td>
<td>Time: 1637</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time: 1101</th>
<th># Containers: 4</th>
<th>Volume: 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CAT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>102-0066</td>
<td>10:28</td>
<td>Ms Stegner</td>
<td></td>
<td>Sample ID 7-C2 on Photoboard</td>
</tr>
<tr>
<td>102-0070</td>
<td>10:38</td>
<td>Ms Stegner</td>
<td></td>
<td>Sediment in Sampler</td>
</tr>
<tr>
<td>102-0067</td>
<td>10:34</td>
<td>Ms</td>
<td></td>
<td>Sediment in Sampler</td>
</tr>
<tr>
<td>102-0076</td>
<td>11:01</td>
<td>M</td>
<td></td>
<td>Second porewater sample attempt (unsuccessful)</td>
</tr>
<tr>
<td>102-0068</td>
<td>10:35</td>
<td>Ms</td>
<td></td>
<td>Sediment in Sampler</td>
</tr>
<tr>
<td>102-0077</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0069</td>
<td>10:35</td>
<td>M</td>
<td></td>
<td>Sediment in Sampler</td>
</tr>
<tr>
<td>102-0078</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Photo Log
### Upper Columbia River R/I/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Camera Serial #</th>
<th>Project:</th>
<th>Station Identifier:</th>
<th>Vessel:</th>
</tr>
</thead>
<tbody>
<tr>
<td>102-0071</td>
<td>10:48</td>
<td>First pore water attempt (unsuccessful)</td>
<td>58750 6601</td>
<td>38310189</td>
<td>7-02</td>
<td>Tahoma mv/Ap/MS</td>
</tr>
<tr>
<td>102-0075</td>
<td>10:59</td>
<td>Sediment in Lexan bucket</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0072</td>
<td>10:49</td>
<td>Sediment sample/Acoop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0076</td>
<td>11:01</td>
<td>Second pore water attempt (unsuccessful)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0073</td>
<td>10:49</td>
<td>Sediment sample/Acoop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0074</td>
<td>10:50</td>
<td>Scoop of Sediment showing 1/8&quot; sand layer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature] Date: 9/11/13
Sample Lead Initials: [Signature] Date: 9/16/13
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>102-0077</td>
<td>11:53</td>
<td>Overview from 7-C2 toward shore/beach</td>
</tr>
<tr>
<td>102-0078</td>
<td>11:53</td>
<td>Overview</td>
</tr>
<tr>
<td>102-0079</td>
<td>11:53</td>
<td>Overview from north-east</td>
</tr>
</tbody>
</table>

- **Date:** 9/16/2013
- **Vessel:** Tahoma, MV
- **Camera Serial #:** 527506601
- **Station Identifier:** 7-C2
- **Project:** 36310189

**Field Supervisor Initials:**

**Sample Lead Initials:**

**Date:** 9/17/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>7-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>9/12/13</td>
<td>Vessel:</td>
<td>TAHOMA</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>(Jeff/Young/Kelly)</td>
<td>Vessel Crew:</td>
<td>HNZ/Trudeau/FuruliE</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>IRVIN (AH)</td>
<td>C.R. Observer:</td>
<td>FLEET</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>12:37</td>
<td>Departure Time:</td>
<td>14:25</td>
</tr>
<tr>
<td>River Stage:</td>
<td>Water Surface Elev. (ft):</td>
<td>12.80.05</td>
<td>Weather Conditions Upon Arrival</td>
</tr>
<tr>
<td></td>
<td>Water Surface Elevation Source:</td>
<td>USBR</td>
<td>Temp (°F):</td>
</tr>
<tr>
<td>Site Information:</td>
<td>Boat Position:</td>
<td>(Powered) (Anchored)</td>
<td>Wind (mph):</td>
</tr>
<tr>
<td></td>
<td>River Mile:</td>
<td></td>
<td>Clouds/Precipitation:</td>
</tr>
<tr>
<td></td>
<td>Water Surface:</td>
<td>(Calm) (Small Waves) (Choppy)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface Vegetation Present:</td>
<td>Yes (No)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Was Vegetation Removed:</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Notable shore surface features:</td>
<td>TREED BEACH TO WEST</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(rock outcrops, streams, wetlands, oxbows, cutoffs, roads, houses, campsites, construction, etc.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Location Photo IDs:  
(see Photo Log for descriptions)  
Camera ID: [Blank]

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
<th>Photo ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General Notes:  
MID RIVER - WEST OF CTR LINE

C.R. - cultural resources
Field Supervisor Initials: KA  
Date: 9/13/13  
Sample Lead Initials: [Blank]  
Date: [Blank]
**Sediment/Porewater Sampling Form**

**Upper Columbia River RIFS**

**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 7-C3

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 2 3</td>
<td>106'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 3</td>
<td>1250</td>
<td>12.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Cultural Resources Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:**

<table>
<thead>
<tr>
<th>EASTING</th>
<th>NORTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>399050.65</td>
<td>5306928.77</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**

2. Overlying water present?  
   - **YES**  
   - **NO**

3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**  
   - **NO**

5. Minimum sampler penetration depth (6 inches) obtained?  
   - **YES**  
   - **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **YES**  
   - **NO**

7. Sample is:  
   - **Accepted**  
   - **Rejected**

**Porewater:**

- Cumulative Percent of Porewater Syringe filled: **<1%**
- Accepted  
- Rejected

**pH of Sediment in Sampler:** 8.7

**Sediment Characteristics:**

- **Type:** % Silt  
  - 100.76 (<1/16 mm)
- % Sand  
  - 1/16 - 2 mm
- % Gravel
- % Cobbles
- % Silica Glass

<table>
<thead>
<tr>
<th>Amphipods</th>
<th>Tubes</th>
<th>Macrophytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Burrows</td>
<td>Hydrogen Sulfide slight</td>
</tr>
</tbody>
</table>

**Sample Collected Using:**

- Van Veen
- Eckman
- Ponor
- Shovel

**Photo Numbers:**

- Sediment in Grab: 1255
- Homogenized: 1255
- Time: 1:31:7

**Sediment (SE) Sample ID:** 5E-7-C3  
**Time:** 1318

- # Containers: 4  
- Volume: 100%

**Duplicate SE Sample ID:** 
- Time:
- # Containers:

**Split SE Samples (EPA/NPS/CCT):** 
- # Containers:

**Pore Water (PW) Sample ID:** 
- Time:
- # Containers:

**Sample Lead Initials:** MM  
**Date:** 9/24/13

**Field Supervisor Initials:** JH  
**Date:** 9/13/13
<table>
<thead>
<tr>
<th>Project: 36310199</th>
<th>Station Identifier: 7-C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 9/12/13</td>
<td>Vessel: RV Tahoma</td>
</tr>
<tr>
<td>Camera Serial #: 527506601</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0009</th>
<th>Time: 11:08</th>
<th>Photographer: MY (Melanie Young)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo Orientation: NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description: Location ID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0013</th>
<th>Time: 12:39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MY</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: East</td>
<td></td>
</tr>
<tr>
<td>Description: Sample Location</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0010</th>
<th>Time: 12:39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MY</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: North</td>
<td></td>
</tr>
<tr>
<td>Description: Sample Location</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0014</th>
<th>Time: 12:58</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MY</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: NA</td>
<td></td>
</tr>
<tr>
<td>Description: Sample in VanVeen</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0011</th>
<th>Time: 12:39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MY</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: West</td>
<td></td>
</tr>
<tr>
<td>Description: Sample Location</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0015</th>
<th>Time: 13:10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MY</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: NA</td>
<td></td>
</tr>
<tr>
<td>Description: Sediment inside VanVeen during Sample Transfer</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0012</th>
<th>Time: 12:39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MY</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: South</td>
<td></td>
</tr>
<tr>
<td>Description: Sample Location</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 100-0016</th>
<th>Time: 13:17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MY</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation: NA</td>
<td></td>
</tr>
<tr>
<td>Description: Homogenized sample</td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature] Date: 9/13/13

Sample Lead Initials: [Signature] Date: [Signature] Date:
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9/20/13
Station Identifier:
Vessel: THOMAS
Sampling Crew: UETTA/SCHMIDT/STEG
Vessel Crew: TEUBEL/HARRIS/HAAGER
EPA Observer: WILKINSON
C.R. Observer: WHITE
Arrival Time: 0816
Departure Time: 1510
River Stage:
Water Surface Elev. (ft): 1282.30
Weather Conditions Upon Arrival:
Temp (°F): 62
Wind (mph): <5
Clouds/Precipitation: CLEAR

Site Information:
Boat Position: (Powered) x (Anchored) v
River Mile: 606
River Current: (Swift) v (Eddie) x (Calm) x (Ripple) x
Boat Traffic: 
Water Surface: (Calm) x (Small Waves) v (Choppy) x
Surface Vegetation Present: Yes \(\checkmark\) \(\checkmark\) x No
Was Vegetation Removed: Yes x No
Notable shore surface features: rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photo ID</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-0212</td>
<td>1039</td>
<td>05024</td>
<td>1048</td>
</tr>
</tbody>
</table>

General Notes:

at edge of cove by rocks, small waterfall in eastern edge of cove
→ good sediment but bottom sloped
had several rejected samples.

C.R. - cultural resources
Field Supervisor Initials: \(\checkmark\)H Date: 9/20/13
Sample Lead Initials: NW Date: 9/20/13

URS
Sediment/Porewater Sampling Forthi  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>S-B1</td>
<td>187'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Casi Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>1038</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>(NAD_83_UTM_Zone_11_North)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>363028.32</td>
</tr>
<tr>
<td>NORTHING:</td>
<td>5310492.16</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overflowed or sediment propped against top of sampler? _YES_  _NO_
2. Overlying water present? _YES_  _NO_
3. Overlying water excessively turbid? _YES_  _NO_
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? _YFR_  _NO_
5. Desired penetration depth (4 to 6 inches) achieved? _YES_  _NO_ (over)
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? _YES_  _NO_

7. Sample is: _Accepted_  _Rejected_

Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: Su</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color: Munsell Color Chart #:

Redox Boundary:
- Present? _Yes_  _No_
- If present -- Depth Below Sediment Surface (inches):

Odor: None  
Other: _Hydrogen sulfide_ (faint)

Amphipods:

<table>
<thead>
<tr>
<th>Debris(wigs/leaves):</th>
<th>Tubes:</th>
<th>Macrophyles:</th>
</tr>
</thead>
</table>

Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab</th>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time:</td>
</tr>
<tr>
<td>Sediment Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Time:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Pore Water Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials:  _MU_  Date:  9/9/09  
Field Supervisor Initials:  _HA_  Date:  9/9/13
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310180</th>
<th>Station Identifier:</th>
<th>S - B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>185' 7&quot;</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1047</td>
</tr>
<tr>
<td>Angle (&lt;= 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 363032.38</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td>NORTING:</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Basal penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:** 7.89 su | Description: |

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Present?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td>0.05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Paint</td>
</tr>
</tbody>
</table>

**Amphipods:** No  | **Tubes:** No  | **Macrophytes:** No

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Stratified sediment</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab</td>
<td>Van Veen</td>
<td>Eckman</td>
</tr>
<tr>
<td>Homogenized Sample</td>
<td>Ponar</td>
<td>Shovel</td>
</tr>
</tbody>
</table>

**Photo Numbers 1's**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>SE-B1</th>
<th>Time:</th>
<th>1403</th>
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<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td>Time:</td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>PW-B1</td>
<td>Time:</td>
<td>1353</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time:</td>
<td></td>
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</table>

**Sample Lead Initials:** M | Date: | 7/20/13 |
| Field Supervisor Initials: | 2A | Date: | 7/24/13 |

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310180
Station Identifier: S-131

Anchor Point (max 3) 1 2 3
Water Depth (feet): 187'

Drop # 1 2 3 Cast Time 1105
Sampler Penetration (inches): Did not trip

Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 363034.72
NORTING: 5310506.43

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES No
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)? YES NO
7. Sample is:
   Accepted
   Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %
Accepted Rejected

pH of Sediment in Sampler: su Description:

Sediment Characteristics

Type: % Silt (<1/16 mm)
        % Sand (1/16 - 2 mm)
        % Gravel
        % Cobble
        % Silica Glass

Color: Munsell Color Chart #:

Redox Boundary Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Amphipods: Tubes: Macrophylous:
Debris(wigs/leaves): Other: Other:

Sample Collected Using
Van Veen
Ekman
Ponar
Shovel

Sample Numbers:
Sediment in Grab: Time:
Homogenized Sample:

SE Sample ID:
Duplicate SE Sample ID:
Split SE Samples (EPA/NPS/CCT): # Containers:
Pore Water (PW) Sample ID:

Sample Lead Initials: Date: 7/12/13 Field Supervisor Initials: Date: 7/14/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 8-B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 178' 6 1/2</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 11 1/3</td>
<td>Sampler Penetration (inches): 6 1/2</td>
</tr>
<tr>
<td>Angle (&lt; 5' max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING 3630 30.89</td>
<td>NORTING 5310 476.29</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (friction) during retrieval, penetration at angle, sitting upon retrieval? YES NO
7. Sample is: Accepted Rejected

Porewater Cumulative Percent of Porewater Syringe filled: 100 %

pH of Sediment in Sampler: 6.01

Sediment Characteristics
- Type: % Silt (<1/16 mm) 100%
- % Sand (1/16 - 2 mm)
- % Gravel
- % Cobble
- % Silica Glass

Amphipods: YES  
Tubes: Other:  
Macrophytes: No

Sample Collected Using:
- Van Veen
- Eckman
- Ponar
- Shovel

Photo Numbers:
- Sediment in Gravel 105-0281
- Homogenized Sample 1118

Sediment (SE) Sample ID: SE-B1 Time: 1403
# Containers: Volume: %
Duplicated SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/GCT): # Containers: Volume: %
Pore Water (PW) Sample ID: PW-B1 Time: 1353
# Containers: Volume: %

Sample Lead Initials: Date: 9/20/13  
Field Supervisor Initials: Date: 9/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
Sediment/Porewater Sampling Form
Upper Columbia River RI/F6
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: S-B1
Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time: 1133
Angle (< 5' max) Yes No
Water Depth (feet): 1821
Sampler Penetration (inches): 7
Cultural Resources Observed? No Yes
Sample Location: EASTING: 363045.52 NORTING: 5310473.92

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? Yes No
7. Selectility is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: % Accepted Rejected

pH of Sediment in Sampler: 6.03 Description:

Sediment Characteristics
Type: % Silt: 100 (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Color: Munsell Color Chart #:
Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): 0.1

Odor: None
Other: Hydrogen sulfide

Amphipods: No
Tubes: No
Macrophytes: No
Debris (twigs/leaves): No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers:
Sediment in Grab: 125-6255
Homogenized Sample:
Other:

Sediment (SE) Sample ID: SE-B1 Time: 2403
# Containers:
Volume:

Duplicate SE Sample ID:
Time: 
# Containers:
Volume:

Split SE Samples (EPA): Yes

Pore Water (PW) Sample ID: PW-B1 Time: 1353
# Containers:
Volume:

Sample Lead Initials: NW Date: 7/20/13
Field Supervisor Initials: NA Date: 9/24/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

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<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>8-B1</th>
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<tbody>
<tr>
<td>Anchor Point (m3):</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>188.4</td>
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<tr>
<td>Drop #:</td>
<td>1 2 3 Cast Time:</td>
<td>Sampler Penetration (inches):</td>
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<tr>
<td>Angle (&lt; 5°max):</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No</td>
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</tbody>
</table>

Sample Location: [NAD_83_UTM_Zone_11_North]  
EASTING: 363029.26  
NORTHING: 5310516.17

Sample Acceptance Criteria:
1. Sampler overfilled or sediment prevent against top of sampler?  
   - Yes  
   - No
2. Overlying water present?  
   - Yes  
   - No
3. Overlying water excessively turbid?  
   - Yes  
   - No
4. Sediment surface relatively ungraded, relatively flat, no sign of channelling or sample washout?  
   - Yes  
   - No
5. Desired penetration depth (4-6 inches) achieved?  
   - Yes  
   - No
6. Any sign of sediment loss (incorporated closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No
7. Sample is:  
   - Accepted  
   - Rejected

Porewater  
Cumulative Percent of Porewater Syringe filled:  
Accepted  
Rejected

pH of Sediment in Sampler:  
Description:  

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;1/16 mm</td>
<td>1/16 - 2 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color:</td>
<td>Munsell Color Chart #:</td>
<td>Description:</td>
<td></td>
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<td></td>
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<tr>
<td>Redox Boundary:</td>
<td>Present?</td>
<td>No</td>
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<tr>
<td>Sediment Surface (inches):</td>
<td>0.05</td>
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<tr>
<td>Odor:</td>
<td>None</td>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td>faint</td>
<td></td>
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<td></td>
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</tbody>
</table>

Amphipods:  
Tubes:  
Macrophytes:  

Stratified sediment: Yes  
No  
Sheen Present: Yes  
No  

Sample Collected Using  
Van Veen  
Eckman  
Ponar  
Shovel  

Sediment in Grab Sample:  
Homogenized Sample:  
Other:  

Photo Numbers 's  
105-0225  
1159  

Sediment (SE) Sample ID:  
Time:  
# Container:  
Volume:  
%

Duplicate SE Sample ID:  
Time:  
# Container:  
Volume:  
%

Split SE Samples (EPA/NPS/CCT):  
Time:  
# Containers:  
Volume:  
%

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume:  
%

Sample Lead Initials:  
Date: 9/30/13  
Field Supervisor Initials:  
Date: 9/30/13  

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2  

URS
<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>8 - B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>201</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>12035</td>
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<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
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<tr>
<td>Sampler Penetration (inches):</td>
<td>7</td>
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<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Sample Location:</td>
<td>EASTING: 363045.62, NAD 83 UTM, Zone 11 North</td>
<td>NORTHING: 5310516.75</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling of sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater:**
- Cumulative Percent of Porewater Syringe filled: __%
- pH of Sediment in Sampler: 8.12 su
- Description: [Blank]

**Sediment Characteristics**
- Type: Silt (1/16 mm)
- Sand (1/16 - 2 mm)
- Gravel
- Cobbles
- Silica Glass

**Anchipsods**
- Debris/leaves: No
- Tubes: No
- Macrophytes: No

**Sample Collected Using**
- Van Veen
- Eckman
- Ponnard
- Shovel

**Photo Numbers'**
- SE-8-B1
- Sediment in Grab: Homogenized Sample
- Time: 12/23
- Volume: %

**Sediment (SE) Sample ID:** SE-8-B1
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<tr>
<th>Time:</th>
<th># Container:</th>
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<tbody>
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</table>

**Duplicate SE Sample ID:**
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<th>Time:</th>
<th># Container:</th>
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<tr>
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</table>

**Split SE Samples (EPANPS/CDC):**
<table>
<thead>
<tr>
<th>Time:</th>
<th># Container:</th>
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**Pore Water (PW) Sample ID:** PW-8-B1
<table>
<thead>
<tr>
<th>Time:</th>
<th># Container:</th>
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<tbody>
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</table>

**Sample Lead Initials:** M/3
**Date:** 9/26/3
**Field Supervisor Initials:** O/A
**Date:** 9/24/3
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310180</th>
<th>Station Identifier: 8-B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 194</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1227</td>
<td>Sampler Penetration (inches): 7</td>
</tr>
<tr>
<td>Angle (&lt; 3°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
</tbody>
</table>

Sample Location:
EASTING: 363047.44 NAD_B3_UTM_Zone_11_North | NORTHING: 5310507.95

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)? minor
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 80 %
pH of Sediment in Sampler: 8.7.4 | Description: 

Sediment Characteristics
Type: % Silt 100 (<1/16 mm)
% Sand (1/16 - 2 mm) 
% Gravel 
% Cobble 
% Silica Glass:
Color: Munsell Color Chart #: 5Y 3/1
Description: Very dark gray
Redox Boundary: Present? Yes No
If present, depth below Sediment Surface (inches): 0.01
Odor: None
Other: Hydrogen sulfide

Amphipods: No
Tubes: No
Other: No
Macrophytes: No

Sample Collected Using
| Stratified sediment: Yes No |
| Sheen Present: Yes No |
| Sample ID: SE-8-01 |
| Time: 1408 |
| Van Veen |
| Eckman |
| Ponor |
| Shovel |
| Sediment in Grab |
| Homogenized Sample |
| Other: |

Photo Numbers & (see Photo Log for descriptions)

Sediment (SE) Sample ID: SE-8-01 Time: 1408 # Containers: 4/3 Volume: 100/50 %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/COT): Time: # Containers: Volume: 50 %
Pore Water (PW) Sample ID: PW-8-1 Time: 1353 # Containers: Volume: %

Sample Lead Initials: MV Date: 9/20/13
Field Supervisor Initials: OA Date: 9/4/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
### Photo Log
Upper Columbia River R/I/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>105-0211</td>
<td>10:34</td>
<td>MS</td>
<td></td>
<td>Photoboard 8-B1</td>
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<td>105-0215</td>
<td>10:42</td>
<td>MS</td>
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<td>Sediment in Grab API Drop1</td>
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<tr>
<td>105-0212</td>
<td>10:39</td>
<td>MS East</td>
<td>Overview</td>
<td></td>
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<tr>
<td>105-0216</td>
<td>10:42</td>
<td>MS</td>
<td></td>
<td>Sediment in Grab API Drop1</td>
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<tr>
<td>105-0213</td>
<td>10:39</td>
<td>MS</td>
<td>North</td>
<td>Overview</td>
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<td>105-0217</td>
<td>10:43</td>
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<td>105-0214</td>
<td>10:40</td>
<td>MS West</td>
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<td>105-0218</td>
<td>10:54</td>
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<td>Sediment in Grab API Drop2</td>
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**Field Supervisor Initials:**

**Sample Lead Initials:**
<table>
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<tr>
<th>Photo ID</th>
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<tbody>
<tr>
<td>105-0219</td>
<td>10:55</td>
<td>Sediment in Grab</td>
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<td></td>
<td>Sediment in Scoop API Drop 2</td>
<td>MS</td>
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<tr>
<td>105-0220</td>
<td>10:57</td>
<td>Sediment in Scoop</td>
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<td></td>
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<td>105-0221</td>
<td>11:18</td>
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<td>105-0222</td>
<td>11:18</td>
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<td>MS</td>
<td></td>
<td>Sediment in Scoop API Drop 2</td>
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# Photo Log

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: 8.B1</th>
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<tbody>
<tr>
<td>Date: 9/20/2013</td>
<td>Vessel: Tahoma, mv/ce/mc</td>
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<tr>
<td>Camera Serial #: 52200000 527200060i</td>
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<table>
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<th>Photo ID</th>
<th>Time</th>
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<tbody>
<tr>
<td>105-0227</td>
<td>11:43</td>
<td>Sediment in Scoop, AP3 Drop 2 (AS)</td>
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<td>105-231</td>
<td>12:15</td>
<td>Sediment in Scoop, AP3 Drop 2 (AS)</td>
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<tr>
<td>105-0228</td>
<td>11:59</td>
<td>Sediment in Grab, AP2 Drop 3 (A2)</td>
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<td>12:33</td>
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<td>12:37</td>
<td>Sediment in Scoop, AP3 Drop 2 (A2)</td>
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<td>105-230</td>
<td>12:12</td>
<td>Sediment in Grab, AP3 Drop 1 (A2)</td>
</tr>
<tr>
<td>105-234</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: 9/24/13
Sample Lead Initials: M/W Date: 6/26/13
## Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Project ID</th>
<th>Date</th>
<th>Station Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-234</td>
<td>12:50</td>
<td>Peristaltic pump in action</td>
<td>36310189</td>
<td>9/20/2013</td>
<td>8-B1</td>
</tr>
<tr>
<td>105-235</td>
<td>12:50</td>
<td>Permeate recovery from</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peristaltic pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105-236</td>
<td>14:26</td>
<td>Sample 8-B1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Homogenized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105-237</td>
<td>14:29</td>
<td>Chain of Custody to NPS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Vessel:** Tahoma  
**Cameras Serial #:** 527

**Photographer:** NWS  
**Photo Orientation:**

---

**Field Supervisor Initials:**  
**Date:** 9/24/13

**Sample Lead Initials:**  
**Date:** 9/20/13
# Sample Location Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Vessel:</th>
<th>Vessel Crew:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>S-BZ</td>
<td>TAHOMA</td>
<td>TRUMBLE/SHAFER/HAMERSLY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date:</th>
<th>Sampling Crew:</th>
<th>EPA Observer:</th>
<th>Arrival Time:</th>
<th>River Stage:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/19/13</td>
<td>LEE/BEACH/SPEARS</td>
<td>LINDEN</td>
<td>08:11</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vessel:</th>
<th>EPA Observer:</th>
<th>Departure Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11:30</td>
</tr>
</tbody>
</table>

**Weather Conditions Upon Arrival**  
- Temp (°F): 580  
- Wind (mph): <10  
- Clouds/Precipitation: CLEAR

### Site Information:

- **Boat Position:** (Powered) (Anchored)  
- **River Mile:** 605  
- **River Current:** (Swift) (Eddy) (Calm) (Ripple)  
- **Boat Traffic:** Support boat

**Water Surface:** (Calm) (Small Waves) (Choppy)

**Surface Vegetation Present:** Yes No

**Was Vegetation Removed:** Yes No

**Notable shore surface features:**
- Houses/trailers SE of island
- Channel across draw

### Sample Location Photo IDs:

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>10Y-0150</td>
<td>08:35</td>
<td>527506601</td>
</tr>
<tr>
<td>10Y-0157</td>
<td>08:36</td>
<td>527506601</td>
</tr>
</tbody>
</table>

**General Notes:**

- 4 good drops for all samples  
- Drop 3 - sampler failed to deploy  
- Drops 2, 4, 5 sample contacted lid  
  - No loss of sediment, minimal water overlying. Measured at corner of grab.  
- EPA good with collecting as good sample material

**C.R. - cultural resources**

<table>
<thead>
<tr>
<th>Field Supervisor Initials</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>MW</td>
<td>9/19/13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Lead Initials</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>MW</td>
<td>9/19/13</td>
</tr>
</tbody>
</table>
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>S-B2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) 2 3</td>
<td>1 2 3</td>
<td>08:25:59</td>
<td>7''</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Sample Location:**  
EASTING: 3621861  
NORTHING: 531941.03

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater:**  
Cumulative Percent of Porewater Syringe filled: 20 mls  
Description: Silty

**pH of Sediment in Sampler:** 7.19

**Sediment Characteristics**

- Type: % Silt (1/16 mm) 100, % Sand (1/16 - 2 mm) 0, % Gravel 0, % Cobbles 0, % Silica Glass 0
- Color: Munsell Color Chart #: 5Y 4/1, Description: Dark gray
- Redox Boundary Present?: Yes  
- Sediment Surface (inches): 0.25
- Odor: None

**Amphipods:**  
- Debris (twigs/leaves): No
- Other: No

**Macrophytes:**  
- Stratified sediment: Yes  
- Sheen Present: No

**Sample Collected Using**  
Van Veen

<table>
<thead>
<tr>
<th>Photo Numbers (see Photo Log for descriptions)</th>
</tr>
</thead>
</table>
| Sediment in Grab: 2013-0160  
Time: 05:38 |
| Homogenized Sample:  
Time: |
| Other:  
Time: |

**Sediment (SE) Sample ID:** SE-5-B2  
Time: 1105  
# Containers: 7  
Volume: 4.00 3.86%

**Duplicate SE Sample ID:**  
Time:  
# Containers:  
Volume:  

**Split SE Samples (EPA NPS CCT):**  
Time:  
# Containers: 1  
Volume: 50%

**Pore Water (PW) Sample ID:** PW-5-B2  
Time: 10:41  
# Containers: 3  
Volume: 113 mls

**Sample Lead Initials:** AW  
Date: 5/18/13  
Field Supervisor Initials: DPH  
Date: 9/29/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>F-B2</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop # 1</td>
<td>2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sampler Penetration (inches)</td>
<td>7</td>
</tr>
<tr>
<td>Water Depth (feet)</td>
<td>143</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 362220.7, (NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td>NORTHING: 531888.57</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **Yes**
2. Overlying water present? **Yes**
3. Overlying water excessively turbid? **Yes**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling by sample washout? **Yes**
5. Desired penetration depth (4 to 6 inches) achieved? **Yes**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **No**
7. Sample is: **Accepted**

### Porewater

- Cumulative Percent of Porewater Syringe filled: 34.5%
- Description: Accepted
- pH of Sediment in Sampler: 7.39
- Description: Silty

### Sediment Characteristics

- Type: % Silt (1/16 mm) 100
- % Sand (1/16 - 2 mm) 0
- % Gravel 0
- % Cobbles 0
- % Silica Glass 0
- Color: Munsell Color Chart #: 5Y 4/1
- Description: Dark Gray
- Redox Boundary: Present? Yes
- If present -- Depth Below Sediment Surface (inches): 0.15
- Odor: None
- Hydrogen sulfide

### Amphipods:
- Yes

### Debris (twigs/leaves):
- No

### Macrophytes:
- No

### Sample Collected Using:

- Van Veen
- Eckman
- Ponar
- Shovel

### Sediment in Grab:
- Sediment ID: SE-B2
- Time: 1105
- # Containers: 7
- Volume: 4-R02 3.80

### Homogenized Sample:
- Sediment ID: SE-B2
- Time: 104
- # Containers: 1
- Volume: 80

### Other:
- Sediment ID: SE-B2
- Time: 104
- # Containers: 3
- Volume: 113

---

**Sample Lead Initials:** MV  
**Date:** 9/8/13  
**Field Supervisor Initials:** DH

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River H/F/S  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: B-82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 142</td>
</tr>
<tr>
<td>Drop # 1 2 3</td>
<td>Cast Time: 000</td>
</tr>
<tr>
<td>Angle (&lt;5°max)</td>
<td>Cultural Resources Observed? (Yes/No)</td>
</tr>
<tr>
<td>Sample Location: EASTING: 362223.51</td>
<td>NORTHING: 531191.08</td>
</tr>
</tbody>
</table>

**Sample Location:**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No
2. Overlying water present?  
   - Yes  
   - No
3. Overlying water excessively turbid?  
   - Yes  
   - No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   - Yes  
   - No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No
7. Sample is:  
   - Accepted  
   - Rejected

**Cumulative Percent of Porewater Syringe filled:** %  
**Accepted**  
**Rejected**

**pH of Sediment in Sampler:**  
**Description:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

**Redox Boundary:**  
**Present?** (Yes/No)

**Odor:**  
- None  
- Hydrogen sulfide

**Other:**

**Amphipods:**

**Debris (twigs/leaves):**

**Tubes:**

**Other:**

**Macrophytes:**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers ’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td>Sediment in Grab:</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td></td>
<td>Other:</td>
<td>Time:</td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sediment (SE) Sample ID:**  
**Duplicate SE Sample ID:**  
**Split SE Samples (EPA/NPS/CCT):**

**Pore Water (PW) Sample ID:**

**Sample Lead Initials:** MW  
**Date:** 9/19/13  
**Field Supervisor Initials:** OH  
**Date:** 9/20/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>S-B2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1</td>
<td>Water Depth (feet):</td>
<td>143</td>
</tr>
<tr>
<td>Drop #</td>
<td>1</td>
<td>Sampler Penetration (inches):</td>
<td>7</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>362.70689</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of contamination or sample washout? **YES**
5. Distilled penetration depth (4 to 8 inches) achieved? **YES**
6. Any sign of sediment loss (intact sample closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater:**

- Cumulative Percent of Porewater Syringe filled: 95%, Accepted
- pH of Sediment in Sampler: 7.68
- Description:

**Sediment Characteristics:**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (0.001 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
<th>Tube</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>&quot;Dark gray&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:** Yes

**Sample Collected Using:**

- Stratified sediment: Yes
- Sheen Present: Yes

**Photo Numbers:**

- Sediment in Grab: 104-0165
- Homogenized Sample: 013

**Sediment (SE) Sample ID:** SE-S-B2

**Duplicate SE Sample ID:**

**Split SE Samples (EPA-NPS/GCT):**

**Pore Water (PW) Sample ID:** PW-S-B2

**Sample Lead Initials:** AM

**Date:** 9/19/13

**Field Supervisor Initials:** LAH

**Date:** 9/20/13

---

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0155</td>
<td>08:15</td>
<td>Michna Stepani (MS)</td>
<td>-</td>
<td>Photoboard 8-B2</td>
</tr>
<tr>
<td>104-0159</td>
<td>8:36</td>
<td>MS</td>
<td>West</td>
<td>Overview</td>
</tr>
<tr>
<td>104-0154</td>
<td>8:35</td>
<td>MS</td>
<td>South</td>
<td>Overview - note house over draw</td>
</tr>
<tr>
<td>104-0160</td>
<td>8:38</td>
<td>MS</td>
<td>-</td>
<td>Sediment in Grab API Drop 1 (91)</td>
</tr>
<tr>
<td>104-0157</td>
<td>8:36</td>
<td>MS</td>
<td>East</td>
<td>Overview</td>
</tr>
<tr>
<td>104-0161</td>
<td>8:42</td>
<td>MS</td>
<td>-</td>
<td>Sediment in Scoop (61) API Drop 1</td>
</tr>
<tr>
<td>104-0158</td>
<td>8:36</td>
<td>MS</td>
<td>East</td>
<td>Overview of 2030</td>
</tr>
<tr>
<td>104-0162</td>
<td>9:45</td>
<td>MS</td>
<td>-</td>
<td>Sediment in Grab API Drop 2 (62)</td>
</tr>
</tbody>
</table>
Photo Log
Upper Columbia River RIFS
2013 Phase 2 Sediment Study

Project: 36310189
Date: 9/19/2013
Station Identifier: 8-B2
Vessel: Tahoma, mv/GP/MS

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0163</td>
<td>9:50</td>
<td>MS</td>
<td>Sediment in Grab API Drop 2 (6)</td>
</tr>
<tr>
<td>104-0164</td>
<td>9:50</td>
<td>MS</td>
<td>Sediment in Grab API Drop 2 (6)</td>
</tr>
<tr>
<td>104-0165</td>
<td>10:13</td>
<td>MS</td>
<td>Sediment in Grab API Drop 2 (6)</td>
</tr>
<tr>
<td>104-0166</td>
<td>10:18</td>
<td>MS</td>
<td>Sediment in Scoop API Drop 1 (4)</td>
</tr>
<tr>
<td>104-0167</td>
<td>10:37</td>
<td>MS</td>
<td>Sediment in Scoop API Drop 2 (6)</td>
</tr>
<tr>
<td>104-0168</td>
<td>10:41</td>
<td>MS</td>
<td>Sediment in Scoop w/visible redox layer AP2 Drop 2 (5)</td>
</tr>
<tr>
<td>104-0169</td>
<td>10:42</td>
<td>MS</td>
<td>Sediment in Scoop w/visible burn layer AP2 Drop 2 (5)</td>
</tr>
<tr>
<td>104-0170</td>
<td>10:44</td>
<td>MS</td>
<td>Sediment from all grabs prior to homogenization</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: DH  Date: 9/20/13
Sample Lead Initials: MW  Date: 9/19/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number</td>
<td>36310189</td>
</tr>
<tr>
<td>Date</td>
<td>9/18/13</td>
</tr>
<tr>
<td>Sampling Crew</td>
<td>VETER/MAHTER/STEAGA</td>
</tr>
<tr>
<td>EPA Observer</td>
<td>MAT WILKINAX</td>
</tr>
<tr>
<td>Arrival Time</td>
<td>084H</td>
</tr>
<tr>
<td>Station Identifier</td>
<td>8B-C2</td>
</tr>
<tr>
<td>Vessel</td>
<td>TA-HOMA</td>
</tr>
<tr>
<td>Vessel Crew</td>
<td>TRUINSE/SNH2/SCHEPER/HAACKLY</td>
</tr>
<tr>
<td>C.R. Observer</td>
<td>BILL WHITE - MB</td>
</tr>
<tr>
<td>Departure Time</td>
<td>0942</td>
</tr>
<tr>
<td>River Stage</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft)</td>
<td>1281.890</td>
</tr>
<tr>
<td>River Stage</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source</td>
<td>USBR</td>
</tr>
<tr>
<td>Weather Conditions Upon Arrival</td>
<td></td>
</tr>
<tr>
<td>Temp (°F)</td>
<td>76.0</td>
</tr>
<tr>
<td>Wind (mph)</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Clouds/Precipitation</td>
<td>Light rain, Han clear</td>
</tr>
<tr>
<td>Site Information</td>
<td></td>
</tr>
<tr>
<td>Boat Position</td>
<td>(Powered)</td>
</tr>
<tr>
<td>River Mile</td>
<td>600</td>
</tr>
<tr>
<td>River Current</td>
<td>(Swift)</td>
</tr>
<tr>
<td>Boat Traffic</td>
<td>Support boat</td>
</tr>
<tr>
<td>Notable shore surface features</td>
<td>NPS SPRING CANYON OFFICE DIRECTLY SOUTH OF STATION, SWIM AREA.</td>
</tr>
<tr>
<td>Photo ID 1: 03-0104 Time: 0834 Camera ID</td>
<td>527504601</td>
</tr>
<tr>
<td>Photo ID 2: 03-0105 Time: 0834 Camera ID</td>
<td>527504601</td>
</tr>
<tr>
<td>General Notes</td>
<td>one grab</td>
</tr>
<tr>
<td></td>
<td>fine sand @ 4&quot;</td>
</tr>
<tr>
<td></td>
<td>- collected PW from tub 28 mls</td>
</tr>
<tr>
<td>C.R. - cultural resources</td>
<td></td>
</tr>
<tr>
<td>Field Supervisor Initials</td>
<td>D.W.</td>
</tr>
<tr>
<td>Date</td>
<td>9/18/13</td>
</tr>
<tr>
<td>Sample Lead Initials</td>
<td>M.W.</td>
</tr>
<tr>
<td>Date</td>
<td>9/18/13</td>
</tr>
</tbody>
</table>
Sediment Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 8B-C2

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time: 0826
Sampler Penetration (inches): 10"

Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 355225.31 (NAD 83_UTM_Zone_11_North)
NORTHING: 5311303.61

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

Sediment Characteristics
Type: % Silt 90 (%<1/16 mm)
% Sand 10 (1/16 - 2 mm)
% Gravel 0
% Cobbles 0
% Silica Glass: 0

Color: Munsell Color Chart #: 5Y 4/1
Description: duck gray

Redox Boundary: Yes No
If present -- Depth Below Sediment Surface (inches): 1"

Odor: None
Other: Hydrogen sulfide

Amphipods: No
Tubes: Other:
Debris (twigs/leaves): No

Sample Collected Using
Van Veen Yes
Shovel No

Sediment in Grab: Yes No
Homogenized Sample: Yes No

Stratified sediment: Yes No
Sheen Present: Yes No

Photo Numbers 's
(see Photo Log for descriptions)
Sediment in Grab: 0834
Time: 0820
Other: 0820, 0834

Sediment (SE) Sample ID: SE-8B-C2 Time: 0902
# Containers: 4 Volume: 100 %

Duplicate SE Sample ID: 0902 Time: 0902
# Containers: 4 Volume: 100 %

Split SE Samples (EPA/NPS/CCT):
# Containers:

Pore Water (PW) Sample ID: PW-8B-C2 Time: 0852
# Containers: 1 Volume: 28 ml/s

Sample Lead Initials: AW Date: 9/18/13
Field Supervisor Initials: 24 Date: 9/20/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>103-0103</td>
<td>08:32</td>
<td>Ms Stegner (ms)</td>
<td></td>
<td>Photoboard AB-C2</td>
</tr>
<tr>
<td>103-0107</td>
<td>08:41</td>
<td>Ms</td>
<td></td>
<td>Sediment in Scoop Grab #1</td>
</tr>
<tr>
<td>103-0104</td>
<td>08:34</td>
<td>Ms</td>
<td>East</td>
<td>Overview (spring canyon bank)</td>
</tr>
<tr>
<td>103-0108</td>
<td>08:48</td>
<td>Ms</td>
<td></td>
<td>Sediment in Lexan tub Grab #1</td>
</tr>
<tr>
<td>103-0105</td>
<td>08:34</td>
<td>Ms</td>
<td>West</td>
<td>Overview</td>
</tr>
<tr>
<td>103-0109</td>
<td>09:20</td>
<td>Ms</td>
<td></td>
<td>Sediment in Lexan tub Grab #1 Homogenized</td>
</tr>
<tr>
<td>103-0106</td>
<td>08:34</td>
<td>Ms</td>
<td></td>
<td>Sediment in Grab #1</td>
</tr>
<tr>
<td>103-0110</td>
<td>09:26</td>
<td>Ms</td>
<td></td>
<td>Sand from Grab #1</td>
</tr>
</tbody>
</table>

**Project:** 36310189  
**Date:** 9/18/2013  
**Camera Serial #:** 5275066601  
**Station Identifier:** AB-C2  
**Vessel:** Tahoma mv/GP/m5  

Field Supervisor Initials:  
Date: 9/18/13  
Sample Lead Initials:  
Date: 9/18/13

**Photo Log**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**

**Photo ID:**  
- **Time:**  
- **Photographer:**  
- **Photo Orientation:**  
- **Description:**
### Photo Log
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>103 0110</td>
<td>09:24</td>
<td>MS</td>
<td></td>
<td>Sand from Grab #1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
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<td></td>
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</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Station Identifier:** BB-C2

**Vessel:** Tahoma

**Project:** 36310189

**Date:** 9/18/2013

**Camera Serial #:** 527506601

**Sample Lead Initials:** MV

**Date:** 9/18/2013

**Field Supervisor Initials:** PO

**Date:** 9/20/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189                          Station Identifier: 8-C2
Date: 9/20/13                                      Vessel: TAHMA
Sampling Crew: VETTER/PANTHER/STEYR                      Vessel Crew: TRUDENAU/SCHREER/HERMSELY
EPA Observer: WALLACE                                  C.R. Observer: WHITE
Arrival Time: 0837                                      Departure Time: 1023
River Stage: Water Surface Elev. (ft): 1282.30
Water Surface Elevation Source: Column Dispatch
Weather Conditions Upon Arrival
Temp (°F): 52°
Wind (mph): <5
Clouds/Precipitation: CLEAR

Site Information:

Boat Position: (Powered) (Anchored)
River Mile: 605

River Current: (Swift) (Eddie) (Calm) (Ripple)
Boat Traffic: SUPPORT BOAT

Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes
Was Vegetation Removed: Yes

Notable shore surface features:
(trees, crops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Treed sandy beach to North.

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Camera ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-0203</td>
<td>0843</td>
<td>527506601</td>
</tr>
<tr>
<td>105-0204</td>
<td>0843</td>
<td></td>
</tr>
</tbody>
</table>

General Notes:
- Collected full volume of porewater (80 y jar)

C.R. - cultural resources

Field Supervisor Initials: OH                      Date: 9/4/13
Sample Lead Initials: MV                           Date: 9/20/13
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
##### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>S-C2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 2 3</td>
<td>40.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 2 3</td>
<td>0843</td>
<td>8.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Cultural Resources Observed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Sample Location:

<table>
<thead>
<tr>
<th>EASTING:</th>
<th>NORTHING:</th>
</tr>
</thead>
<tbody>
<tr>
<td>363847.05</td>
<td>5313253.4</td>
</tr>
</tbody>
</table>

#### Sterile Acceptance Criteria:

1. Sampler overfilled or sediment pushed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>pH of Sediment in Sampler:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.04</td>
</tr>
</tbody>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (≤1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>0.05''</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amiphods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab</td>
<td>Homogenized Sample</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-0206</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

---

Sample Lead Initials: **MU**

Date: **9/20/13**

Field Supervisor Initials: **DK**

Date: **9/24/13**

---

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310180</th>
<th>Station Identifier:</th>
<th>8-L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>432'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampl er Penetration (inches):</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 363848.56 NORTING: 6313282.12</td>
<td>(NAD 83 UTM Zone 11 North)</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **Yes**
2. Overlying water present? **Yes**
3. Overlying water excessively turbid? **No**
4. Sediment surface relatively undisturbed, relatively flat, no sign of churning or sample washout? **Yes**
5. Depositional penetration depth (4 to 6 inches) achieved? **No**
6. Adequate sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **Yes**
7. Sample is: **Accepted**

**Porewater:** Cumulative Percent of Porewater Syringe filled: **100%**

pH of Submersible Sampler: **7.69 su**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble s</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25 (&lt;1/18 mm)</td>
<td>75 (1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color: Munsell Color Chart #: **5Y 3/1**

Redox Boundary Present: **Yes**

Sediment in Grabs:
- Van Veen
- Eckman
- Ponor
- Shovel

**Sediment (SE) Sample ID:** SE-8-C2

**Duplicate SE Sample ID:**

**Split SE Samples (EPA/NPS/CCT):**

**Pore Water (PW) Sample ID:** PW-8-C2

**Sample Lead Initials:** 
**Date:** 9/20/13
**Field Supervisor Initials:** 
**Date:** 9/20/13

Report by: URS

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Photo Log

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-0202</td>
<td>08:37</td>
<td>Photo board 8.62</td>
</tr>
<tr>
<td>105-0204</td>
<td>08:41</td>
<td>Sediment in Grab API Drop 1</td>
</tr>
<tr>
<td>105-0203</td>
<td>08:43</td>
<td>Overview</td>
</tr>
<tr>
<td>105-0207</td>
<td>08:54</td>
<td>Sediment in Grab API Drop 2</td>
</tr>
<tr>
<td>105-0208</td>
<td>09:07</td>
<td>Peristatic pump in action</td>
</tr>
<tr>
<td>105-0209</td>
<td>09:07</td>
<td></td>
</tr>
</tbody>
</table>

---

Field Supervisor Initials:  
Date: 9/24/13  
Sample Lead Initials:  
Date: 9/20/13
Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project: 36310189
Date: 9/20/2013
Camera Serial #: 527-504601

Station Identifier: 8-02
Vessel: Tahoma MV/EP/35

Photo ID: 105-0210 Time: 09:45
Photographer: NV
Photo Orientation: Sediment in Tub
Description:

Homogenized for
BA Sample

Photo ID: 
Photographer: 
Photo Orientation: 
Description: 

Photo ID: 
Photographer: 
Photo Orientation: 
Description: 

Photo ID: 
Photographer: 
Photo Orientation: 
Description: 

Photo ID: 
Photographer: 
Photo Orientation: 
Description: 

Field Supervisor Initials:
Date: 9/24/13
Sample Lead Initials:
Date: 9/20/13
### Sample Location Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th><strong>Project Number:</strong></th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date:</strong></td>
<td>10-1-13</td>
</tr>
<tr>
<td><strong>Station Identifier:</strong></td>
<td>REE-3</td>
</tr>
<tr>
<td><strong>Vessel:</strong></td>
<td>Tahomea</td>
</tr>
<tr>
<td><strong>Sampling Crew:</strong></td>
<td>Rapp/Tole/maresy</td>
</tr>
<tr>
<td><strong>EPA Observer:</strong></td>
<td>Troudeau/Schatz/Posey</td>
</tr>
<tr>
<td><strong>Arrival Time:</strong></td>
<td>1102</td>
</tr>
<tr>
<td><strong>C.R. Observer:</strong></td>
<td>Dupuyet</td>
</tr>
<tr>
<td><strong>Departure Time:</strong></td>
<td>1448</td>
</tr>
<tr>
<td><strong>River Stage:</strong></td>
<td>1284.95</td>
</tr>
<tr>
<td><strong>Water Surface Elev. (ft):</strong></td>
<td>1284.95</td>
</tr>
<tr>
<td><strong>Water Surface Elevation Source:</strong></td>
<td>Coeur Dam</td>
</tr>
<tr>
<td><strong>Weather Conditions Upon Arrival</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Temp (°F):</strong></td>
<td>58</td>
</tr>
<tr>
<td><strong>Wind (mph):</strong></td>
<td>25</td>
</tr>
<tr>
<td><strong>Clouds/Precipitation:</strong></td>
<td>mostly cloudy</td>
</tr>
</tbody>
</table>

### Site Information:

- **Boat Position:** (Powered) (Anchored)
- **River Mile:** 689
- **Water Surface:** (Calm) (Small Waves) (Creepy)
- **Surface Vegetation Present:** Yes (No)
- **Was Vegetation Removed:** Yes (No)
- **Notable shore surface features:** east shore bedrock outcrops west shore campground

### Sample Location Photo IDs:

<table>
<thead>
<tr>
<th><strong>Photo ID:</strong></th>
<th>167-0237</th>
<th><strong>Time:</strong> 11:05</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo ID:</strong></td>
<td>167-0236</td>
<td><strong>Time:</strong> 11:06</td>
</tr>
</tbody>
</table>

### General Notes:

- **C.R. - cultural resources**
- **Field Supervisor Initials:** NY  
  **Date:** 10/2/13
- **Sample Lead Initials:** JH  
  **Date:** 10-1-13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>28.3'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>VR</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

**Sample Location:**  
NAD 83_UTM Zone 11 North  
EASTING: 412110.13  
NORTHING: 5370103.10

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%  
Accepted Rejected

pH of Sediment in Sampler: VR  
Description:

**Sediment Characteristics**

| Type | % Silt | Color | Munsell Color Chart #:
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Redox Boundary:

If present -- Depth Below Sediment Surface (inches):

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

**Tubes:**

<table>
<thead>
<tr>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

**Stratified sediment:** Yes No

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
</tr>
<tr>
<td>Eckman</td>
</tr>
<tr>
<td>Ponar</td>
</tr>
<tr>
<td>Homogenized Sample</td>
</tr>
<tr>
<td>Shovel</td>
</tr>
</tbody>
</table>

**Sediment in Grab:** 107-0232  
Time: 1107

**Homogenized Sample:**  
Time:

**Sediment (SE) Sample ID:**  
Time:  
# Containers:  
Volume: ___%

**Duplicate SE Sample ID:**  
Time:  
# Containers:  
Volume: ___%

**Split SE Samples (EPA/NPS/CTT):**  
# Containers:  
Volume: ___%

**Pore Water (PW) Sample ID:**  
Time:  
# Containers:  
Volume: ___%

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: [Signature]  
Date: 10-1-13  
Field Supervisor Initials: [Signature]  
Date: 9/2/13

**URS**
### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___ %
- pH of Sediment in Sampler: __________

### Sediment Characteristics
- Type: % Silt (1/16 mm) __________ % Sand (1/16 - 2 mm) __________ % Gravel __________ % Cobble __________ % Silica Glass __________
- Color: Munsell Color Chart #: __________
- Description: __________
- Odor: None
- Hydrogen sulfide

### Amphipods:
- Debris (twigs/leaves):
- Other: __________

### Sample Collected Using
- Stratified sediment: Yes No
- Sheen Present: Yes No
- Sample Collected Using: Van Veen __________ Eckman __________
- Sediment in Grab: __________
- Homogenized Sample: __________
- Other: __________

### Photo Numbers
- (see Photo Log for descriptions)
- Sediment (SE) Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________
- Duplicate SE Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________
- Split SE Samples (EPA/NPS/CCT): __________
- Time: __________
- # Containers: __________
- Volume: __________
- Pore Water (PW) Sample ID: __________
- Time: __________
- # Containers: __________
- Volume: __________

### Sample Lead Initials
- Date: 10-1-13

### Field Supervisor Initials
- Date: 10-19-13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>412.118.08 (NAD_83_UTM_Zone_11_North)</th>
</tr>
</thead>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris/leaves</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sample Collected Using</td>
<td>Sediment in Grab:</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers's</th>
<th>Sediment in Grab:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(see Photo Log for descriptions)</td>
<td>107-0253</td>
<td>11/16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: **A**
Date: **10-1-13**

Field Supervisor Initials: **SN**
Date: **10/27/13**

**URS**
**Sediment/Porewater Sampling Form**

Upper Columbia River RI/FS

2013 Phase 2 Sediment Study

---

**Project Number:** 36310189

**Station Identifier:** 462A REF-3

### Sample Location

- **EASTING:** 410112.99
- **NORTHING:** 5370161.35

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes ☐  
   - No ☐

2. Overlying water present?  
   - Yes ☐  
   - No ☐

3. Overlying water excessively turbid?  
   - Yes ☐  
   - No ☐

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes ☐  
   - No ☐

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes ☐  
   - No ☐

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes ☐  
   - No ☐

7. Sample is:  
   - Accepted ☐  
   - Rejected ☐

### Porewater

- Cumulative Percent of Porewater Syringe filled: __%  
  - Accepted ☐  
  - Rejected ☐

- pH of Sediment in Sampler: NR

### Sediment Characteristics

- **Type:** 
  - % Silt  
  - % Sand  
  - % Gravel  
  - % Cobble  
  - % Silica Glass

- **Color:** Munsell Color Chart #: 
  - Description:

- **Redox Boundary:** 
  - Present? Yes ☐ No ☐
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:** 
  - None ☐
  - Hydrogen sulfide ☐
  - Other:

### Amphipods:

- **Debris (twigs/leaves):**
- **Tubes:**
- **Other:**

### Macrophytes:

- **Stratified sediment:** Yes ☐ No ☐
- **Sheen Present:** Yes ☐ No ☐

### Sample Collected Using

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Photo Numbers 's

(see Photo Log for descriptions)

### Sediment (SE) Sample ID:

- **Time:** __
- **# Containers:** __
- **Volume:** __% □

### Duplicate SE Sample ID:

- **Time:** __
- **# Containers:** __
- **Volume:** __% □

### Split SE Samples (EPA/NPS/CCT):

- **Time:** __
- **# Containers:** __
- **Volume:** __% □

### Pore Water (PW) Sample ID:

- **Time:** __
- **# Containers:** __
- **Volume:** __% □

---

**Sample Lead Initials:**  
**Date:** 10-1-13

**Field Supervisor Initials:**  
**Date:** 19/13/13

---

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

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<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>42.5'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td></td>
<td>[NAD_83_UTM_Zone_11_North]</td>
</tr>
<tr>
<td>EASTING:</td>
<td>412077.16</td>
<td>NORTING:</td>
<td>5370142.54</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
- pH of Sediment in Sampler: NR su Description:

### Sediment Characteristics
<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Present?</th>
<th>Yes No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment Surface (inches):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Odor: None Hydrogen sulfide Other:

### Amphipods:
- Debris(wigg/leaves):
- Other:

### Sample Collected Using
- Stratified sediment: Yes No
- Sheen Present: Yes No
- Van Veen Eckman Ponar Shovel

### Photo Numbers:
- Sediment in Grab: 107-0234 Time: 1124
- Homogenized Sample: Time: 
- Other:

### Sediment (SE) Sample ID:
- Time: 
- # Containers: 
- Volume: %

### Duplicate SE Sample ID:
- Time: 
- # Containers: 
- Volume: %

### Split SE Samples (EPA/NPS/CCT):
- Time: 
- # Containers: 
- Volume: %

### Pore Water (PW) Sample ID:
- Time: 
- # Containers: 
- Volume: %

### Sample Lead Initials: B Date: 10-1-13
### Field Supervisor Initials: DH Date: 10-13-13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>REF-423</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
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</tr>
<tr>
<td>Water Depth (feet):</td>
<td>22.4</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>11:25</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>N/R</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>[NAD_83_UTM_Zone_11_North] 412117.32 E 5370099.08 N</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>0% AcceptedRejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>N/R su</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td>Redox Boundary Present? Yes No</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>If present -- Depth Below</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>Sediment Surface (inches):</td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris/-twigs/leaves:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Yes No</td>
<td>Sediment in Grab: [Photo Log for descriptions]</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Sample Collected Using</td>
<td>Van Veen</td>
<td>Time:</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td></td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Duplicate SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

### Sample Lead Initials: [Signature] Date: 10-1-13

### Field Supervisor Initials: [Signature] Date: 10-1-13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

<table>
<thead>
<tr>
<th><strong>Project Number:</strong></th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anchor Point (max 3)</strong></td>
<td>1 2 3</td>
</tr>
<tr>
<td><strong>Drop #</strong></td>
<td>1 2 3</td>
</tr>
<tr>
<td><strong>Cast Time</strong></td>
<td>1 3 2</td>
</tr>
<tr>
<td><strong>Water Depth (feet):</strong></td>
<td>NR</td>
</tr>
<tr>
<td><strong>Angle (&lt; 5° max):</strong></td>
<td>Yes No</td>
</tr>
<tr>
<td><strong>Cultural Resources Observed?</strong></td>
<td>No Yes</td>
</tr>
<tr>
<td><strong>Sample Location:</strong></td>
<td>EASTING: NR (NAD_83_UTM_Zone_11_North)</td>
</tr>
</tbody>
</table>
| **Sample Acceptance Criteria:** | 1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted Rejected |

---

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:**  
- **pH of Sediment in Sampler:** NR su
- **Description:**

---

**Sediment Characteristics:**

- **Type:**
  - % Silt (<1/16 mm)
  - % Sand (1/16 - 2 mm)
  - % Gravel
  - % Cobbles
  - % Silica Glass

- **Color:** Munsell Color Chart #:
- **Description:**

---

**Amphipods:**

- **Tubes:**
- **Other:**

**Debris (twigs/leaves):**

**Macrophytes:**

---

**Sample Collected Using:**

- **Stratified sediment:** Yes No Van Veen
- **Sheen Present:** Yes No Eckman
- **Ponar:**
- **Shovel:**

**Sediment in Grab:**

**Homogenized Sample:**

**Photo Numbers:**

**Time:** 1134

---

**Sediment (SE) Sample ID:**

**Time:**  
**# Containers:**   
**Volume:**

**Duplicate SE Sample ID:**

**Time:**  
**# Containers:**   
**Volume:**

**Split SE Samples (EPA/NPS/CCT):**

**Time:**  
**# Containers:**   
**Volume:**

**Pore Water (PW) Sample ID:**

**Time:**  
**# Containers:**   
**Volume:**

---

**Sample Lead Initials:** JH  
**Date:** 10-1-13

**Field Supervisor Initials:** RY  
**Date:** 10-2-13

---

**Sample ID Format:**

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

---

**URS**
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** R=E-3  
**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):** 38.2

**Drop #:** 1 2 3  
**Cast Time:** 135  
**Sampler Penetration (inches):** 9.5

**Angle (< 5°max):** Yes  
**No**

**Sample Location:** EASTING: 4120417.96  
**NORTHING:** 5370110.20

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
   **NO**

2. Overlying water present? **YES**  
   **NO**

3. Overlying water excessively turbid? **YES**  
   **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
   **NO**

5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
   **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
   **NO**

7. Sample is: **Accepted**  
   **Rejected**

---

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ___%  
- pH of Sediment in Sampler: 8.37

---

**Sediment Characteristics**

- **Type:**  
  - % Silt: ___ (<1/16 mm)  
  - % Sand: ___ (1/16 - 2 mm)  
  - % Gravel: ___  
  - % Cobbles: ___  
  - % Silica Glass: ___  

- **Color:** Munsell Color Chart #: Description:

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment Surface (inches):</td>
<td>If present -- Depth Below</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Odor:** None  
  - Hydrogen sulfide

---

**Amphipods:**

- Debris (twigs/leaves): Yes  
  **No**

**Sample Collected Using**

- Van Veen  
- Eckman  
- Ponar  
- Shovel

- Sediment in Grab: Time: **11:34**  
- Homogenized Sample: Time: **11:40**

---

**Sediment (SE) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Duplicate SE Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Split SE Samples (EPA/NPS/CCT):**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

**Pore Water (PW) Sample ID:**  
**Time:**  
**# Containers:**  
**Volume:**  
**%**

---

**Sample Lead Initials:** [Handwritten Initials]  
**Date:** 10-1-13  
**Field Supervisor Initials:** [Handwritten Initials]  
**Date:** 10-1-13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
Project Number: 36310189
Station Identifier: REF-3
Anchor Point (max 3) 1 2 3
Water Depth (feet): 38.8
Drop # 1 2 3 Cast Time
Sample Penetration (inches): 2"
Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes
Sample Location: (NAD 83 UTM, Zone 11, North)
Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: 8.37

Sediment Characteristics
Type: % Silt (%<1/16 mm)
% Sand (%1/16-2 mm)
% Gravel
% Cobbles
% Silica Glass

Color: Munsell Color Chart #:
Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris (twigs/leaves):

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Other:

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials [JL-1-13] Date/7/13 Field Supervisor Initials DX Date: 19/7/13
### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

### Porewater

Cumulative Percent of Porewater Syringe filled: 75%  
**Accepted**

pH of Sediment in Sampler: **Not Recorded**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (≤1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

Color: Munsell Color Chart #:  
Description:

Redox Boundary: Present? **Yes**

If present -- Depth Below Sediment Surface (inches):

Odor: None  
Hydrogen sulfide

### Amphipods:

Debris (twigs/leaves):

Other:

### Tubes:

Sample Collected Using:
- Van Veen
- Eckman
- Sediment in Grab
- Ponar
- Homogenized Sample
- Shovel
- Other:

Photo Numbers:

### Sediment (SE) Sample ID:

Time:  
# Containers:  
Volume:  

### Duplicate SE Sample ID:

Time:  
# Containers:  
Volume:  

### Split SE Samples (EPA/NPS/CCT):

Time:  
# Containers:  
Volume:  

### Pore Water (PW) Sample ID:

Time:  
# Containers:  
Volume:  

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189

Sample Location:
EASTING: 412088.89
NORTHING: 5370104.01

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: Accepted Rejected

pH of Sediment in Sampler: 8.42

Sediment Characteristics
Type: % Silt (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Color:
Munsell Color Chart #:
Description:

Redox Boundary:
Present? No
If present -- Depth Below Sediment Surface (inches):

Odor: Hydrogen sulfide
Other:

Amphipods: Debris (twigs/leaves):

Sample Collected Using:
Van Veen
Eckman
Ponar
Shovel

Sediment in Grab:
Time:

Homogenized Sample:
Time:

Other:

Stratified sediment: YES NO
Sheen Present: YES NO

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: 10/7/13
Field Supervisor Initials: 10/7/13
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>38.6</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>East Time:</td>
<td>1220</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 412078.42</td>
<td>NORTHING: 5370106.24</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Accepted  
   - Rejected

2. Overlying water present?  
   - Accepted  
   - Rejected

3. Overlying water excessively turbid?  
   - Accepted  
   - Rejected

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Accepted  
   - Rejected

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Accepted  
   - Rejected

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Accepted  
   - Rejected

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: 100%

**pH of Sediment in Sampler:** 8.27

**Sediment Characteristics**

- Type: % Silt (1/16 mm) 95%  
- % Sand (1/16 - 2 mm) 5%  
- % Gravel  
- % Cobbles  
- % Silica Glass  
- Color: Munsell Color Chart #: 5Y 3/2  
- Redox Boundary: Present? Yes  
- Odor: None  
- Hydrogen sulfide

**Amphipods:**  
- Tubes:  
- Macrophytes:  
- Debris (twigs/leaves):  
- Other:

**Sample Collected Using**

- Sediment in Grab: Van Veen  
- Homogenized Sample: Shovel

**Photo Numbers:**

- (see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID</th>
<th>Time: 1420</th>
<th># Containers: 4/3</th>
<th>Volume: 100/80 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time: 1420</td>
<td># Containers: 1</td>
<td>Volume: 80 %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID</td>
<td>Time: 1408</td>
<td># Containers: 3</td>
<td>Volume: 100 %</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:**  
- Date: 10-1-13  
- Field Supervisor Initials: AN  
- Date: 10-1-13

**Sample ID Format:**  
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-0227</td>
<td>11:05</td>
<td>BM</td>
<td>Station ID</td>
<td>Station 3</td>
</tr>
<tr>
<td>107-0228</td>
<td>11:06</td>
<td>BM</td>
<td>North</td>
<td>Upstream of station</td>
</tr>
<tr>
<td>107-0229</td>
<td>11:06</td>
<td>BM</td>
<td>East</td>
<td>Left bank</td>
</tr>
<tr>
<td>107-0230</td>
<td>11:06</td>
<td>BM</td>
<td>West</td>
<td>Right bank</td>
</tr>
<tr>
<td>107-0231</td>
<td>11:16</td>
<td>BM</td>
<td>South</td>
<td>Downstream of station</td>
</tr>
<tr>
<td>107-0232</td>
<td>11:07</td>
<td>BM</td>
<td></td>
<td>Rejected material, grab #1 (sand)</td>
</tr>
<tr>
<td>107-0233</td>
<td>11:16</td>
<td>BM</td>
<td></td>
<td>Rejected material, grab #3 (sand)</td>
</tr>
<tr>
<td>107-0234</td>
<td>11:24</td>
<td>BM</td>
<td></td>
<td>Rejected material, grab #5, grab stuck open with rocks</td>
</tr>
</tbody>
</table>

Field Supervisor Initials:  
Date: 10/1/13

Sample Lead Initials:  
Date: 10/1/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-0235</td>
<td>11:28</td>
<td>BM</td>
<td></td>
<td>Rejected material</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grab #6 - grab stuck</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Open cut with rocks</td>
</tr>
<tr>
<td>107-0236</td>
<td>11:34</td>
<td>BM</td>
<td></td>
<td>Rejected material</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grab #7</td>
</tr>
<tr>
<td>107-0237</td>
<td>11:34</td>
<td>BM</td>
<td></td>
<td>SF Accepted</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grab #8</td>
</tr>
<tr>
<td>107-0239</td>
<td>11:53</td>
<td>BM</td>
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<td>SF Accepted</td>
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<tr>
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<td></td>
<td></td>
<td>Grab #9</td>
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<td>107-0241</td>
<td>12:07</td>
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<td>Rejected material</td>
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<td>Grab #10</td>
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<td>107-0242</td>
<td>12:12</td>
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<td>SF Accepted</td>
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<td></td>
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<td></td>
<td></td>
<td>Grab #11</td>
</tr>
<tr>
<td>Photo ID: 167-0043</td>
<td>Time: 12:14</td>
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<td></td>
<td></td>
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<tr>
<td>---------------------</td>
<td>-------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Photographer: BM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
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<tr>
<td>Description: SF scoop, grab #11</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 167-0044</th>
<th>Time: 12:24</th>
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<tbody>
<tr>
<td>Photographer: BM</td>
<td></td>
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<tr>
<td>Photo Orientation:</td>
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<tr>
<td>Description: SF Accepted, grab #12</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 167-0045</th>
<th>Time: 13:24</th>
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</thead>
<tbody>
<tr>
<td>Photographer: BM</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description: SF scoop, grab #12</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 167-0046</th>
<th>Time: 14:18</th>
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</thead>
<tbody>
<tr>
<td>Photographer: BM</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description: REFS-3 homogenized sample</td>
<td></td>
</tr>
</tbody>
</table>

---

Field Supervisor Initials: DA  Date: 10/6/13
Sample Lead Initials: JG  Date: 10/1/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9-30-13
Station Identifier: REF-4
Vessel: Tahoma
Sampling Crew: Rapp, Hale, Mavros
EPA Observer: Tomlin
C.R. Observer: Hubert
Arrival Time: 12:28
Departure Time: 15:26
River Stage:
   Water Surface Elev. (ft): 1284.96
   Water Surface Elevation Source: Coles - Drum

Weather Conditions Upon Arrival
   Temp (°F): 60°
   Wind (mph): 5-10
   Clouds/Precipitation: cloudy light rain

Site Information:
   Boat Position: (Powered) (Anchored)
   River Mile: 379
   River Surface: (Calm) (Small Waves) (Choppy)
   Surface Vegetation Present: Yes  No
   Vegetation Removed: Yes  No
   Notable shore surface features: (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

Sample Location Photo IDs:
(see Photo Log for descriptions)
Photo ID: 106-0200  Time: 1228  Photo ID: 106-201  Time: 1232
Photo ID: 106-0202  Time: 1232  Photo ID: 106-0203  Time: 1232

Camera ID: TA-2 Pentax

General Notes:

C.R. - cultural resources
Field Supervisor Initials: AL
Date: 10/6/15
Sample Lead Initials: AL
Date: 9-30-13

URS
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: 6AF-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 43.2</td>
</tr>
<tr>
<td>Drop # 1 2 3</td>
<td>Cast Time 12:31</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING 411894.70</td>
<td>NORTHING 535650.70</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

**Porewater**

- Cumulative Percent of Porewater Syringe filled: __%  
- Accepted Rejected

- pH of Sediment in Sampler: NR

- Description:

**Sediment Characteristics**

- Type: % Silt: (<1/16 mm)ε  
  % Sand: (1/16 - 2 mm)ε  
  % Gravel ε  
  % Cobbles 100  
  % Silica Glass:

- Color: Munsell Color Chart #: NA

- Redox Boundary: Present? Yes No

- Odor: None Hydrogen sulfide

**Microorganisms:**

- Amphipods:  
- Tubes:  
- Macrophytes:

**Debris (twigs/leaves):**

- Stratified sediment: Yes No  
- Sheen Present: Yes No

**Sample Collected Using**

- Van Veen

- Eckman

- Ponar

- Shovel

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
<td>%</td>
</tr>
</tbody>
</table>

Sample Lead Initials:  
Date: 9-30-13  
Field Supervisor Initials: ON  
Date: 10-01-13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF-4
Anchor Point (max 3) 1 2 3
Water Depth (feet): 38.4
Drop # 1 2 3 Cast Time
Sampler Penetration (inches):
Angle (< 5' max) Yes No
Cultural Resources Observed? No Yes
Sample Location: 411896.85 (NAD_83_UTM_Zone_11_North)
EASTING: 535653.382
NORTHING: 435463.582

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___%
\[\text{Description:}\]
\[\text{pH of Sediment in Sampler:} \]
\[\text{su}\]

Sediment Characteristics
\[\text{Type:} \]
\[\text{% Silt} (\text{<1/16 mm})\]
\[\text{% Sand} (1/16 - 2 mm)\]
\[\text{% Gravel}\]
\[\text{% Cobbles 100}\]
\[\text{% Silica Glass}\]
\[\text{Color:} \]
\[\text{Munsell Color Chart #:} \]
\[\text{NA}\]
\[\text{Redox Boundary:} \]
\[\text{Present?:} \]
\[\text{Yes} \]
\[\text{No}\]
\[\text{Sediment Surface (inches):} \]
\[\text{Odor:} \]
\[\text{None} \]
\[\text{Hydrogen sulfide}\]

Amphipods:
Debris (wigs/leaves):
Stratified sediment: Yes No
Sheen Present: Yes No
Sample Collected Using:
\[\text{Van Veen}\]
\[\text{Eckman}\]
\[\text{Ponar}\]
\[\text{Shovel}\]
Other:

Photo Numbers
(\text{see Photo Log for descriptions})
\[\text{Time:} \]
\[\text{1236}\]

Sediment (SE) Sample ID: 
\[\text{Time:} \]
\[\# Containers:} \]
\[\text{Volume:} \]
\[\%\]
Duplicate SE Sample ID: 
\[\text{Time:} \]
\[\# Containers:} \]
\[\text{Volume:} \]
\[\%\]
Split SE Samples (EPA/NPS/CCT): 
\[\text{# Containers:} \]
\[\text{Volume:} \]
\[\%\]
Pore Water (PW) Sample ID: 
\[\text{Time:} \]
\[\# Containers:} \]
\[\text{Volume:} \]
\[\%\]

Sample Lead Initials: \[\text{Date:} \]
\[\text{9-50-13}\]
Field Supervisor Initials: \[\text{Date:} \]
\[\text{10-2013}\]
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>REF-4</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>4.8</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
</tr>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING 41192012 NORTING 53565792</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled: ____%

pH of Sediment in Sampler: 8.78 su

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color:</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Redox Boundary: Present? Yes No

If present -- Depth Below

Sediment Surface (inches): |

Odor: None Hydrogen sulfide

Other: |

**Stratified sediment:** Yes No

Van Veen Eckman

Sediment in Grab: 106-0268

Time: 12:40

Homogenized Sample: 106-209

Time: 12:42

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris (e.g., leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pine needles</td>
<td>Other: clam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers’</th>
</tr>
</thead>
<tbody>
<tr>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Time: 106-0268</td>
</tr>
<tr>
<td>Time: 106-209</td>
</tr>
<tr>
<td>Time: 124-0</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:**

Date: 9-30-13

Field Supervisor Initials: AT

Date: 10-01-13

Sample ID Format:

SE 1-C2: Sediment at Station 1-C2 (Chemistry only)

SE 1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW 1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 48.8</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1250</td>
<td>Sampler Penetration (inches): 10</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 441919.56 (NAD_83_UTM_ZONE_11_North) NORTHING: 5356522.97</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: 8.30 su</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>98</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

Redox Boundary: Present? **Yes** **No**

If present -- Depth Below Sediment Surface (inches):

Amphipods: Other: Debris (twigs/leaves):

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>No</th>
<th>Sheen Present: Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen Eckman</td>
<td>10L - 021D Time: 1253</td>
<td></td>
</tr>
<tr>
<td>Ponar Homogenized Sample</td>
<td>Time: 10L - 0211</td>
<td></td>
</tr>
<tr>
<td>Shovel Other:</td>
<td>Time: 10L - 0215</td>
<td></td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: Time: # Containers: Volume: %

Duplicate SE Sample ID: Time: # Containers: Volume: %

Split SE Samples (EPA/NPS/CCT) # Containers: Volume: %

Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: K.Z Date: 9-30-13 Field Supervisor Initials: K.Z Date: 10/1/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>49.3'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>411912.38 [NAD_83_UTM_Zone_11_North]</td>
<td>NORTHING:</td>
<td>535651.152</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

<table>
<thead>
<tr>
<th>Porewater</th>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>8.06</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
<th>Type: % Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td>95</td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand</td>
<td>5</td>
<td>(1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris (twigs/leaves):</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;stick&quot;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers &quot;s (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab: 106-0206 Time: 1305</td>
</tr>
<tr>
<td>Ponar</td>
<td>Homogenized Sample: 106-0213 Time: 1306</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes No</th>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes No</td>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: 7  Date: 7-30-13  Field Supervisor Initials: NA  Date: 10/01/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>48.0</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3 East Time</td>
<td>Sampler Penetration (inches):</td>
<td>9</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASTING: 411.929.89</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td>NORTHING: 5356317.61</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>8.36</th>
</tr>
</thead>
<tbody>
<tr>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm): 95</th>
<th>Color:</th>
<th>Munsell Color Chart #: 5Y 3/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm): 5</td>
<td>Description:</td>
<td>dark olive gray</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

- Debris/twigs/leaves:

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment: Yes</td>
<td>106-0214 Time: 1318</td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td>106-0214 Time: 1318</td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td>106-0214 Time: 1318</td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td>106-0214 Time: 1318</td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>106-0214 Time: 1318</td>
</tr>
<tr>
<td>Sediment SE Sample ID:</td>
<td>106-0214 Time: 1318</td>
</tr>
<tr>
<td>Sediment Split SE Sample ID:</td>
<td>106-0214 Time: 1318</td>
</tr>
</tbody>
</table>

### Duplicate SE Sample ID:

| Sediment PW Sample ID: | 106-0214 Time: 1318 |

### Sample Lead Initials:

<table>
<thead>
<tr>
<th>Date:</th>
<th>Field Supervisor Initials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-30-13</td>
<td>20N 10/1/13</td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
</tr>
<tr>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>106-0200</td>
<td>12:28</td>
</tr>
<tr>
<td>106-0201</td>
<td>12:32</td>
</tr>
<tr>
<td>106-0202</td>
<td>12:32</td>
</tr>
<tr>
<td>106-0203</td>
<td>12:32</td>
</tr>
<tr>
<td>106-0204</td>
<td></td>
</tr>
<tr>
<td>106-0205</td>
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<td>106-0206</td>
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<tr>
<td>106-0207</td>
<td>12:36</td>
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<td>106-0208</td>
<td>12:40</td>
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<tr>
<td>Photo ID</td>
<td>Time</td>
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<tr>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>106-0209</td>
<td>12:42</td>
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<tr>
<td>106-0210</td>
<td>12:53</td>
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<td>106-0211</td>
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<td>13:19</td>
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<tr>
<td>106-0216</td>
<td>14:27</td>
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</table>
**Sample Location Form**  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>Ref-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>9-27-13</td>
<td>Vessel:</td>
<td>Tahoma</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>Rapp/Wehr/Hale</td>
<td>Vessel Crew:</td>
<td>Trudel/SchaeAr/Hamerly</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>Latier</td>
<td>C.R. Observer:</td>
<td>Hubert</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>1031</td>
<td>Departure Time:</td>
<td>1253</td>
</tr>
</tbody>
</table>

**River Stage:**
- Water Surface Elev. (ft): 1284.36
- Water Surface Elevation Source: Coulee Dam
- Weather Conditions Upon Arrival:
  - Temp (°F): 56°
  - Wind (mph): 5
  - Clouds/Precipitation: overcast

**Site Information:**
- Boat Position: (Powered)
- River Mile: 674
- River Current: (Swift) (Eddy) (Calm) (Ripple)
- Boat Traffic: support boat (Seirra)
- Water Surface: (Calm) (Small Waves) (Choppy)
- Surface Vegetation Present: Yes
- Was Vegetation Removed: Yes
- Notable shore surface features:
  - Rust shore HWY 25
  - (rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)

**Sample Location Photo IDs:**
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
<th>Photo ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0144</td>
<td>1058</td>
<td>104-0145</td>
<td>1058</td>
</tr>
<tr>
<td>104-0146</td>
<td>1058</td>
<td>104-0147</td>
<td>1059</td>
</tr>
</tbody>
</table>

**General Notes:**
complete a total of 9 grabs. Decision is reached to abandon due to a lack of sufficient sediment.

**C.R. - cultural resources**

Field Supervisor Initials:  
Sample Lead Initials:  
Date: 9-28-13  
Date: 9-27-13

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>RPA-5</th>
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<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>28.4</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1033</td>
</tr>
<tr>
<td>Angle (&lt; 5°/max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 414650.00</td>
<td>NORTHING: 352337.26</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater:
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: NR

Sediment Characteristics:
<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
Odor: None Hydrogen sulfide Other:

Amphipods:
Debris (twigs/leaves):

Sample Collected Using:
Sample ID: 
Time: 
# Containers: 
Volume: 

Photo Numbers (see Log for descriptions):

Sediment in Grab:
Homogenized Sample:
Other:

Split SE Samples (EPA/NPS/CCT):

Pore Water (PW) Sample ID:
Time: 
# Containers: 
Volume: 

Sample Lead Initials: X Date: 5-27-13 Field Supervisor Initials: KH Date: 5-28-13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Biocassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 32.8</td>
</tr>
<tr>
<td>Drop #</td>
<td>Sampler Penetration (inches): 3-4&quot;</td>
</tr>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Cultural Resources Observed: No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
</tr>
<tr>
<td></td>
<td>NORTHING: 5352349.82</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___%
- Accepted: ___
- Rejected: ___
- pH of Sediment in Sampler: **N/K**

### Sediment Characteristics
- Type: % Silt (1/16 mm) ___
- % Sand (1/16 - 2 mm) ___
- % Gravel ___
- % Cobbles ___
- % Silica Glass ___
- Color: Munsell Color Chart #: ___
- Description: ___
- Redox Boundary: Present? **Yes**
- Depth Below Sediment Surface (inches): ___
- Odor: **None**
- Hydrogen sulfide

### Amphipods:
- Debris (algae/leaves): ___
- Other: ___

### Sample Collected Using
- Van Veen ___
- Eckman ___
- Ponar ___
- Shovel ___
- Sediment in Grab: ___
- Homogenized Sample: ___
- Other: ___

### Photo Numbers:
- (see Photo Log for descriptions) 1040

### Sediment (SE) Sample ID: ___
- Time: ___
- # Containers: ___
- Volume: ___

### Duplicate SE Sample ID: ___
- Time: ___
- # Containers: ___
- Volume: ___

### Split SE Samples (EPA/NPS/CCT): ___
- Time: ___
- # Containers: ___
- Volume: ___

### Pore Water (PW) Sample ID: ___
- Time: ___
- # Containers: ___
- Volume: ___

---

Sample Lead Initials: ___
Date: 9-27-13
Field Supervisor Initials: ___
Date: 9/28/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>4.5</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>10S9</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Sampler Penetration (inches):</td>
<td>5</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING:</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td>NORTHING:</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Accepted: Yes  
   - Rejected: No
2. Overlying water present?  
   - Accepted: Yes  
   - Rejected: No
3. Overlying water excessively turbid?  
   - Accepted: Yes  
   - Rejected: No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Accepted: Yes  
   - Rejected: No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Accepted: Yes  
   - Rejected: No
6. Any sign of sediment loss (incomplete closure, penetration at angle, biting upon retrieval)?  
   - Accepted: Yes  
   - Rejected: No
7. Sample is:  
   - Accepted: Yes  
   - Rejected: No

**Porewater**  
Cumulative Percent of Porewater Syringe filled: __%  
Accepted:  
Rejected: ___%

**pH of Sediment in Sampler:** 8.00  
**Su:**  
**Description:**

**Sediment Characteristics**

- **Type:**  
  - % Silt: _______________ (<1/16 mm)  
  - % Sand: _______________ (1/16 - 2 mm)  
  - % Gravel: 
  - % Cobbles: 
  - % Silica Glass: 

- **Color:**  
  - Munsell Color Chart #:  
  - Description:

- **Redox Boundary:**  
  - Present?: Yes  
  - If present -- Depth Below Sediment Surface (inches): Other:

- **Odor:**  
  - None: Hydrogen sulfide

**Amphipods:**  
Debris (twigs/leaves):

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers’ (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab:</td>
<td>10268</td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td>Other:</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

**Split SE Samples (EPA/NPS/CCT):**  
**Pore Water (PW) Sample ID:  
Time: | # Containers: | Volume: |%

**Sample Lead Initials:**  
**Date:** 9-27-13  
**Field Supervisor Initials:**  
**Date:** 9-28-13

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 47.9'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1111</td>
<td>Sampler Penetration (inches): 8.5</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes No</td>
<td>Cultural Resources Observed No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 414628.43 NAD_83_UTM_Zone_11_North</td>
<td>NORTHING: 4352310.20</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: NR su Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
If present - Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods: Tubes: Macrophytes: Debris/twigs/leaves: Other:

<table>
<thead>
<tr>
<th>Stratified sediment: Yes No</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sediment in Grab:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Date:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

Sample Lead Initials: JF Date: 9-27-13 Field Supervisor Initials: ON Date: 9/28/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2  

URS
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>30.8</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>1:28</td>
</tr>
<tr>
<td>Angle (&lt; 5(^\circ)max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**

- **EASTING:** 414619.98 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 5352309.80

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  **NO**
2. Overlying water present? **YES**  **NO**
3. Overlying water excessively turbid? **YES**  **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  **NO**
7. Sample is: **Accepted**  **Rejected**

**Porewater**

| Cumulative Percent of Porewater Syringe filled: | 80% |
| Accepted | Rejected |

**pH of Sediment in Sampler:**

- MR
- su
- Description:

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Color:** Munsell Color Chart #:
- **Description:**

- **Redox Boundary:**
  - Present? **Yes**  **No**
  - If present -- Depth Below Sediment Surface (inches):

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

**Amphipods:**

<table>
<thead>
<tr>
<th>Debris/leaves:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Sample Collected Using:**
  - Van Veen
  - Eckman
  - Ponar
  - Shovel

- **Sediment in Grab:**
  - Time: 11:32

- **Homogenized Sample:**
  - Time: 11:32

- **Other:**
  - Time: 11:32

- **Sediment (SE) Sample ID:**
  - Time: 
  - # Containers: 
  - Volume: %

- **Duplicate SE Sample ID:**
  - Time: 
  - # Containers: 
  - Volume: %

- **Split SE Samples (EPA/NPS/CCT):**
  - Time: 
  - # Containers: 
  - Volume: %

- **Pore Water (PW) Sample ID:**
  - Time: 
  - # Containers: 
  - Volume: %

**Sample Lead Initials:**

**Date:** 9-27-13

**Field Supervisor Initials:**

**Date:** 11-18-15

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 1 2 3</td>
<td>Water Depth (feet): 57.4'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 14:04</td>
<td>Sampler Penetration (inches): &lt;4'</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 414625.50</td>
<td>NORTHING: 2352294.68</td>
</tr>
</tbody>
</table>

Sample Location:

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

Cumulative Percent of Porewater Syringe filled: 0%

Sediment Characteristics:

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Redox Boundary</td>
<td>Present? Yes No</td>
<td>If present - Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Odor</td>
<td>None Hydrogen sulfide</td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amphipods:

Debris(leaves): Other:

Sample Collected Using:

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab (see Photo Log for descriptions)</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment: Yes No</td>
<td>Homogenized Sample Other:</td>
<td>1148</td>
</tr>
<tr>
<td>Sheen Present: Yes No</td>
<td>Time:</td>
<td>Time:</td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>Time:</td>
<td># Containers: Volume: %</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers: Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers: Volume: %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers: Volume: %</td>
</tr>
</tbody>
</table>

Sample Lead Initials: Field Supervisor Initials: Date: 9/27/18 Date: 1/28/18

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
# Sediment/Porewater Sampling Form

## Upper Columbia River RI/FS

### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>52.3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1157</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>[NAD_83_UTM_Zone_11_North]</td>
<td>EASTING: 411,460.211</td>
<td>NORTING: 535,9234.677</td>
</tr>
</tbody>
</table>

## Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, sitting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

## Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

| pH of Sediment in Sampler: | 8.38 | Description: |

## Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color:</th>
<th>Munsell Color Chart #: 2.5Y 3/2</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
<td>If present - Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide</td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

## Amphipods:

<table>
<thead>
<tr>
<th>Debris/Bugs/Leaves:</th>
<th>Tubes:</th>
<th>Other:</th>
</tr>
</thead>
</table>

| Stratified sediment: Yes No | Sample Collected Using: | Photo Numbers:
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present: Yes No</td>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td>Other: 104-0185</td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td>Time: 1156</td>
</tr>
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<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE-REF-5</td>
<td>1655</td>
<td>4/2</td>
<td>16/0.86 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplicate SE Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Split SE Samples (EPA/NPS/CCT):</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW-REF-5</td>
<td>1637</td>
<td>3</td>
<td>100 %</td>
</tr>
</tbody>
</table>

## Sample Lead Initials: | Date: 9/27/13 | Field Supervisor Initials: | Date: 10/28/13 | URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th><strong>Project Number:</strong></th>
<th><strong>36310189</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Station Identifier:</strong></td>
<td><strong>REF-S</strong></td>
</tr>
<tr>
<td><strong>Anchor Point (max 3):</strong></td>
<td>1 2 3</td>
</tr>
<tr>
<td><strong>Water Depth (feet):</strong></td>
<td>54.9’</td>
</tr>
<tr>
<td><strong>Drop #:</strong></td>
<td>1 2 3</td>
</tr>
<tr>
<td><strong>Cast Time:</strong></td>
<td>1205</td>
</tr>
<tr>
<td><strong>Sampler Penetration (inches):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Angle (&lt; 5’max):</strong></td>
<td>Yes No</td>
</tr>
<tr>
<td><strong>Cultural Resources Observed?</strong></td>
<td>No Yes</td>
</tr>
<tr>
<td><strong>Sample Location:</strong></td>
<td>[NAD_83_UTM_Zone_11_North]</td>
</tr>
<tr>
<td><strong>EASTING:</strong></td>
<td>4146909.22</td>
</tr>
<tr>
<td><strong>NORTHING:</strong></td>
<td>5350219.25</td>
</tr>
<tr>
<td><strong>Sample Acceptance Criteria:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES No</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES No</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES No</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES No</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES No</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES No</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted Rejected</td>
</tr>
</tbody>
</table>

**Porewater**

<table>
<thead>
<tr>
<th><strong>Cumulative Percent of Porewater Syringe filled:</strong></th>
<th>%</th>
<th></th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

| **pH of Sediment in Sampler:** | **NR** | su | Description: |

**Sediment Characteristics**

<table>
<thead>
<tr>
<th><strong>Type:</strong></th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Color:</strong></th>
<th><strong>Munsell Color Chart #:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Redox Boundary:</strong></th>
<th>Present?</th>
<th>Yes</th>
<th>No</th>
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</table>

<table>
<thead>
<tr>
<th><strong>Odor:</strong></th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Amphipods:</strong></th>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Sample Collected Using:</strong></th>
<th><strong>Photo Numbers ‘s</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Van Veen</strong></td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td><strong>Eckman</strong></td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td><strong>Ponder</strong></td>
<td>Time: 1208</td>
</tr>
<tr>
<td><strong>Shovel</strong></td>
<td>Time: 1208</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sediment (SE) Sample ID:</strong></th>
<th><strong>Time:</strong></th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duplicate SE Sample ID:</strong></td>
<td><strong>Time:</strong></td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td><strong>Split SE Samples (EP/A/NPS/CCT):</strong></td>
<td><strong>Time:</strong></td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td><strong>Pore Water (PW) Sample ID:</strong></td>
<td><strong>Time:</strong></td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

| **Sample Lead Initials:** | **Date:** 9/27/13 | **Field Supervisor Initials:** | **Date:** 9/28/13 |

**Sample ID Format:**
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>58.6'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1210</td>
</tr>
<tr>
<td>Angle (&lt;5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>414602 80</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Porewater</th>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Sediment Characteristics | | |
|--------------------------|------------------|---|---|
| Type: | % Silt (<1/16 mm) | % Sand (1/16 - 2 mm) | % Gravel | % Cobbles | % Silica Glass | Color | Munsell Color Chart #: | | |
| | | | | | | | Description: | | |

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris/twigs/leaves:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubes:</td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macrophytes:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample SE Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment/Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Lead Initials</th>
<th>Date:</th>
<th>Field Supervisor Initials:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-27-13</td>
<td></td>
<td>10-1</td>
<td>7-28-13</td>
</tr>
</tbody>
</table>

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

**URS**
## Photo Log
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project: 39310189</th>
<th>Station Identifier: REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 9-27-13</td>
<td>Vessel: Tahoma</td>
</tr>
<tr>
<td>Camera Serial #: TA-2 pentax</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0142</th>
<th>Time: 1035</th>
<th>Description: REF-5 Grab #1 rejected material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0143</th>
<th>Time: 1040</th>
<th>Description: REF-5 Grab #2 rejected material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0144</th>
<th>Time: 1058</th>
<th>Description: North Sta REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td>North</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0145</th>
<th>Time: 1058</th>
<th>Description: East Sta REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td>East</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0146</th>
<th>Time: 1058</th>
<th>Description: West Sta REF-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td>West</td>
<td></td>
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<table>
<thead>
<tr>
<th>Photo ID: 104-0147</th>
<th>Time: 1059</th>
<th>Description: REF-5 Sta ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0148</th>
<th>Time: 1103</th>
<th>Description: rejected grab material #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0149</th>
<th>Time: 1114</th>
<th>Description: grab #4 accepted material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
<td></td>
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</table>

Field Supervisor Initials: [Signature]
Date: 9/28/13

Sample Lead Initials: [Signature]
Date: 9/27/13

URS
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0150</td>
<td>1112</td>
<td>accepted, grab #4, scooped</td>
</tr>
<tr>
<td>104-0151</td>
<td>1132</td>
<td>grab #5 material</td>
</tr>
<tr>
<td>104-0152</td>
<td>1132</td>
<td>grab #5, grabbed material</td>
</tr>
<tr>
<td>104-0153</td>
<td>1132</td>
<td>grab #5 accepted, scooped</td>
</tr>
<tr>
<td>104-0154</td>
<td>1148</td>
<td>grab #6, material rejected</td>
</tr>
<tr>
<td>104-0155</td>
<td>1156</td>
<td>grab #7, material accepted</td>
</tr>
<tr>
<td>104-0156</td>
<td>1157</td>
<td>grab #7, scooped (accepted)</td>
</tr>
<tr>
<td>104-0157</td>
<td>1208</td>
<td>grab #8, rejected</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: JH  Date: 9/28/13
Sample Lead Initials: JL  Date: 9/27/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0158</td>
<td>1214</td>
<td>Grab #9 rejected</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td>104-0159</td>
<td>1222</td>
<td>REF-5 gravel from selve (site abandoned)</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td>104-0175</td>
<td>1652</td>
<td>SF in tub</td>
<td>JR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Field Supervisor Initials: 9/29/13
Sample Lead Initials: 9/27/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 38310189  
Station Identifier: REF-5b

Date: 9-27-13  
Vessel: Taboom

Sampling Crew: Rapp/Her/Hal  
Vessel Crew: Trudnov/Schafer/Hamerly

EPA Observer: Latier  
C.R. Observer: Hubert

Arrival Time: 1535  
Departure Time: 1447

River Stage:  
Water Surface Elev. (ft): 1284.30

Weather Conditions Upon Arrival:  
Temp (°F): 61

Water Surface Elevation Source: Couville Dam  
Wind (mph): 10-15

Site Information:  
Clouds/Precipitation: incp. clouds/light rain

Boat Position: (Powered)  
River Mile: 678

River Current: (Swift)  
Boat Traffic: Sierra support boat

(Anchored)  
(Calm) River Mile: 678

(Small Waves)  
(Calm/Small Waves)

Water Surface: (Calm)  
Was Vegetation Removed: Yes

Surface Vegetation Present: Yes  
No

Notable shore surface features:  
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campites, construction, etc.)

Sample Location Photo IDs:  
(see Photo Log for descriptions)

Photo ID: 104-0160  Time: 1313

Camera ID: TA-2 pentax  
Photo ID: 104-0161  Time: 1335

Photo ID: 104-0162  Time: 1335  
Photo ID: 104-0163  Time: 1335

General Notes:  
Insufficient se to collect samples. Abandon Sta REF-5B.

C.R. - cultural resources

Field Supervisor Initials:  
Date: 9/5/13

Sample Lead Initials:  
Date: 9-27-13  

URS
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** REF-51

**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):**

**Drop #:** 1 2 3  
**Cast Time:** 1337

**Angle (<5°max):** Yes  No  
**Sampler Penetration (inches):**

**Cultural Resources Observed:** No  Yes

**Sample Location:**

- **EASTING:**
- **NORTHING:**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  NO

2. Overlying water present?  
   - YES  NO

3. Overlying water excessively turbid?  
   - YES  NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout?  
   - YES  NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  NO

7. Sample is:  
   - Accepted  Rejected

**Porewater**  
**Cumulative Percent of Porewater Syringe filled:**

- **% Accepted**
- **% Rejected**

**pH of Sediment in Sampler:**

**Description:**

**Sediment Characteristics**

- **Type:**
  - % Silt  
  - (1/16 mm)
  - % Sand  
  - (1/16 - 2 mm)
  - % Gravel
  - % Cobbles
  - % Silica Glass

- **Color:**
  - Munsell Color Chart #:
  - Description:

- **Redox Boundary:**
  - Present? Yes  No

- **Sediment Surface (inches):**
  - Depth Below

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other

**Amphipods:**

- **Debris (twigs/leaves):**
  - Tubes:
  - Other:

**Macrophytes:**

**Sample Collected Using**

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

**Photo Numbers 's**

- **Sediment in Grab:**
  - (see Photo Log for descriptions)

- **Homogenized Sample:**
  - Time:

- **Other:**
  - Time:

- **Sediment (SE) Sample ID:**
  - Time:
  - # Containers:
  - Volume:

- **Duplicate SE Sample ID:**
  - Time:
  - # Containers:
  - Volume:

- **Split SE Samples (EPA/NPS/CCT):**
  - # Containers:
  - Volume:

- **Pore Water (PW) Sample ID:**
  - Time:
  - # Containers:
  - Volume:

**Sample Lead Initials:** [IL]  
**Date:** 9-27-13  
**Field Supervisor Initials:** [SA]  
**Date:** 9-29-13

Sample ID Format:

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-5B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>19.9'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>134K</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>Sampler Penetration (inches):</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 411833.28</td>
<td>NAD_83_UTM_Zone_11_North</td>
<td></td>
</tr>
<tr>
<td>NORTING:</td>
<td>354926.34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: Accepted **Rejected**

### Porewater

- Cumulative Percent of Porewater Syringe filled: ___%
- Accepted **Rejected**
- pH of Sediment in Sampler: _________ su
- Description: __________

### Sediment Characteristics

- Type: % Silt (<1/16 mm)
- % Sand (1/16 - 2 mm)
- % Gravel
- % Cobbles
- % Silica Glass

- Color: Munsell Color Chart #:
- Description: __________
- Redox Boundary: Yes **No**
- Odor: None **Hydrogen sulfide**
- Other: __________

### Amphipods:

**Debris/algae/leaves:** Others:

### Photo Numbers:

- Sediment in Grab: 124-0165 Time: 134K
- Homogenized Sample: Time: __________
- Other: Time: __________

### Sample Lead Initials:

**Date:** 7-27-13 **Field Supervisor Initials:** 104 **Date:** 7-28-13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-5B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1</td>
</tr>
<tr>
<td>Drop #</td>
<td>1</td>
</tr>
<tr>
<td>Angle (&lt; 5')max</td>
<td>Yes</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 416876.86</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

**Porewater**

Cumulative Percent of Porewater Syringe filled: ___%

**ph of Sediment in Sampler:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

**Color:** Munsell Color Chart #: Description:

**Redox Boundary:**

Present? **Yes**

Depth Below Sediment Surface (inches): * 

**Odor:** None Hydrogen sulfide

**Amphipods:**

Debris (twigs/leaves):

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Poner</th>
<th>Shovel</th>
</tr>
</thead>
</table>

**Photo Numbers'**

(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Time:</th>
</tr>
</thead>
</table>

| Sediment (SE) Sample ID: | Time: | # Containers: | Volume:%
|--------------------------|-------|---------------|----------|
| Duplicate SE Sample ID: | Time: | # Containers: | Volume:%
| Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume:%
| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume:%

Sample Lead Initials: jk Date: 9-27-13 Field Supervisor Initials: ox Date: 9/28/13

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** REF-5b

- **Anchor Point (max 3):** 1 2 3  
- **Drop #:** 2 3  
- **Cast Time:** 1353
- **Water Depth (feet):** 53.6
- **Sampler Penetration (inches):**
- **Cultural Resources Observed:** No
- **Sample Location:** E: 411869.54  
  N: 535491.73  
  (NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Rejected**

**Porewater**
- **Cumulative Percent of Porewater Syringe filled:**  
- **Accepted:**  
- **Rejected:**
- **pH of Sediment in Sampler:**
- **Description:**

**Sediment Characteristics**
- **Type:** 
  - % Silt: 
  - % Sand: 
  - % Gravel: 
  - % Cobble: 
  - % Silica Glass:
- **Color:**
  - **Munsell Color Chart #:**
  - **Description:**
- **Redox Boundary:**
  - **Present?** Yes  
  - **If present - Depth Below Sediment Surface (inches):**
- **Odor:** None  
  - Hydrogen sulfide
  - **Other:**

**Amphipods:**
- Debris (twigs/leaves):

**Tubes:**

**Macrophytes:**

**Sample Collected Using**
- **Van Veen:**
- **Eckman:**
- **Ponar:**
- **Shovel:**

**Photo Numbers:**
- **Sediment in Grab:** 1356
- **Homogenized Sample:**
- **Other:**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID</td>
<td>Time</td>
<td># Containers</td>
<td>Volume</td>
<td>%</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT)</td>
<td>Time</td>
<td># Containers</td>
<td>Volume</td>
<td>%</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID</td>
<td>Time</td>
<td># Containers</td>
<td>Volume</td>
<td>%</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** JK  
**Date:** 7/27/13  
**Field Supervisor Initials:** KG  
**Date:** 7/28/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-5D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 59.0'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>Sampler Penetration (inches):</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: 411869.65 NAD_83_UTM_Zone_11_North</td>
<td></td>
</tr>
<tr>
<td>EASTING: 535410.45 NORTHING:</td>
<td></td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

<table>
<thead>
<tr>
<th>Porewater</th>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: su</td>
<td>Description:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>Description:</td>
</tr>
<tr>
<td>% Silt</td>
<td>(&lt;1/16 mm)</td>
</tr>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present? Yes No</td>
</tr>
<tr>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide Other:</td>
<td></td>
</tr>
</tbody>
</table>

Amphipods: | Tubes: | Macrophytes: |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris(twigs/leaves):</td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Yes No</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Yes No</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume: %</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

Sample Lead Initials [ ] | Date: 9-27-13 | Field Supervisor Initials [ ] | Date: 9/28/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

### Project Number: 36310189

### Station Identifier: REF-56

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>62.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources Observed?</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>[NAD_83_UTM_Zone_11_North]</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>NORTING: 5354909.02</th>
</tr>
</thead>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? 
   - **YES**

2. Overlying water present? 
   - **NO**

3. Overlying water excessively turbid? 
   - **YES**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? 
   - **YES**

5. Desired penetration depth (4 to 6 inches) achieved? 
   - **YES**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? 
   - **NO**

7. Sample is: 
   - **Accepted**

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

| pH of Sediment in Sampler: | su |

### Sediment Characteristics

- **Type:** 
  - % Silt: 
  - % Sand: 
  - % Gravel: 
  - % Cobbles: 
  - % Silica Glass: 

- **Color:** Munsell Color Chart #:

- **Redox Boundary:** Present?
  - Yes
  - No

- **Odor:** None
  - Hydrogen sulfide

### Amphipods:

- Debris/trigs/leaves:

### Tubes:

### Macrophytes:

### Sample Collected Using:

- Van Veen
- Eklman
- Ponar
- Shovel

### Sediment in Grab:

<table>
<thead>
<tr>
<th>Homogenized Sample:</th>
<th>Time:</th>
</tr>
</thead>
</table>

### Other:

### Duplicate SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
</table>

| Sample Lead Initials: | Date: 7-27-13 | Field Supervisor Initials: KO4 | Date: 9/20/13 |

### Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: 2PF-56
Anchor Point (max 3) 1 2 3 Water Depth (feet): 57.0
Drop # 1 2 3 Cast Time: 14:10
Angle (< 5’max) Yes No Sampler Penetration (inches): 0
Cultural Resources Observed? No Yes
Sample Location: [NAD_83_UTM_Zone_11_North] EASTING: 411849.51 NORTHING: 5354901.44

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ______% Accepted Rejected
pH of Sediment in Sampler: ___________ su Description:

Sediment Characteristics

Type: % Silt (<1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass: 
% clay (2-4 mm) % sand (2-16 mm) % gravel (4-40 mm) % cobble (40-200 mm) % other:
Color: Munsell Color Chart #:
Description:
Redox Boundary: Present? Yes No If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods:
[Debris/twigs/leaves]:
Other:

Sample Collected Using
Van Veen _______ Eckman _______ Ponor _______ Shovel _______

Sample ID:

Sediment (SE) Sample ID: _______ Time: _______ # Containers: _______ Volume: _______%
Duplicate SE Sample ID: _______ Time: _______ # Containers: _______ Volume: _______%
Split SE Samples (EPA/NPS/CCT): _______ Time: _______ # Containers: _______ Volume: _______%
Pore Water (PW) Sample ID: _______ Time: _______ # Containers: _______ Volume: _______%

Photo Numbers "s (see Photo Log for descriptions):
L00-0170 Time: 14:14

Sample Lead Initials: Date: 9/27/13 Field Supervisor Initials: 04 Date: 9/28/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** 8FF-5B

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Depth (feet)</td>
<td></td>
<td></td>
<td>63.8'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Cast Time: 14:25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:** (NAD_83_UTM_Zone_11_North)  
**EASTING:** 411887.62  
**NORTHING:** 5354917.96

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **NO**  
3. Overlying water excessively turbid? **NO**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**  
5. Desired penetration depth (4 to 6 inches) achieved? **NO**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? **NO**  
7. Sample is: *Keep upper 6''*  

**Porewater**  
**Cumulative Percent of Porewater Syringe filled:**  
**Accepted**  
**Rejected**

**pH of Sediment in Sampler:**  
**Description:**

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
<th>Color: Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Redox Boundary: Present? | Yes | No |

<table>
<thead>
<tr>
<th>Odor:</th>
<th>None</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

**Debris (twigs/leaves):**

**Tubes:**

**Macrophytes:**

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
<th>Sample Collected Using</th>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ekman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponor</td>
<td>Homogenized Sample:</td>
<td>Time: 14:29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td>Other:</td>
<td>Time:</td>
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<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

| Split SE Samples (EPA/NPS/CCT): | Time: | # Containers: | Volume: |
| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: |

**Sample Lead Initials:**  
**Date:** 1/27/13  
**Field Supervisor Initials:**  
**Date:** 1/28/13

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF-5B

Anchor Point (max 3) 1 2 3
Water Depth (feet): 54.71
Drop # 1 2 3 Cast Time:
Sampler Penetration (inches):
Angle (< 5°max) Yes No
Cultural Resources Observed? No Yes
Sample Location: 411872.56 535493.25
NAD 83 UTM Zone 11 North
EASTING:
NORTHING:

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, slipping upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ____%
Accepted Rejected
pH of Sediment in Sampler: ___________ su Description:

Sediment Characteristics
Type: % Silt (1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass
Color: Munsell Color Chart #:
Description:
Redox Boundary: Present? Yes No
If present – Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods: Tubes: Macrophyles:
Debris/twigs/leaves: Other:

Stratified sediment: Yes No
Sheen Present: Yes No
Sample Collected Using
Van Veen
Eckman
Ponar
Shovel
Sediment in Grab: Homogenized Sample:
Other:

Photo Numbers ’s
(see Photo Log for descriptions)

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: AN Date: 7/27/13 Field Supervisor Initials: 3H Date: 9/28/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Biossay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>REF-5b</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>1444</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Sample Location: (NAD_83_UTM_Zone_11_North)</td>
<td>411871.1 5354904.49</td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>_____%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: su</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
</tr>
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</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color: Munsell Color Chart #:</th>
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</thead>
<tbody>
<tr>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>If present: Depth Below Sediment Surface (inches):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
</tr>
<tr>
<td>Other:</td>
</tr>
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</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

### Tubes:

<table>
<thead>
<tr>
<th>Macrophytes:</th>
</tr>
</thead>
</table>

### Sample Collected Using

<table>
<thead>
<tr>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Homogenized Sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID: Time: # Containers: Volume: %

### Duplicate SE Sample ID: Time: # Containers: Volume: %

### Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume: %

### Pore Water (PW) Sample ID: Time: # Containers: Volume: %

---

Sample Lead Initials: [ illegible ]

Date: 9/27/15

Field Supervisor Initials: [ illegible ]

Date: 9/25/15

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0160</td>
<td>1313</td>
<td>Station ID</td>
<td>104-0161</td>
<td>1335</td>
<td>approx. north up river</td>
</tr>
<tr>
<td>JR</td>
<td></td>
<td></td>
<td>JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>west</td>
<td>1335</td>
<td>west shore gabion box</td>
<td>East</td>
<td>1335</td>
<td>east shore</td>
</tr>
<tr>
<td>104-0162</td>
<td></td>
<td></td>
<td>104-0163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>grab outside station perimeter</td>
<td>1342</td>
<td></td>
<td>grab #1 rejected</td>
<td>1348</td>
<td></td>
</tr>
<tr>
<td>104-0164</td>
<td></td>
<td></td>
<td>104-0165</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JR</td>
<td></td>
<td></td>
<td>JR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>grab #2 rejected</td>
<td>1351</td>
<td></td>
<td>grab #3 rejected</td>
<td>1356</td>
<td></td>
</tr>
<tr>
<td>104-0166</td>
<td></td>
<td></td>
<td>104-0167</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JR</td>
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<td>JR</td>
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<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Photographer</td>
<td>Photo Orientation</td>
<td>Description</td>
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<tr>
<td>10Y-0168</td>
<td>1400</td>
<td>JR</td>
<td></td>
<td>Grab #6 rejected</td>
<td></td>
</tr>
<tr>
<td>10Y-0169</td>
<td>1407</td>
<td>JR</td>
<td></td>
<td>Grab #7 rejected</td>
<td></td>
</tr>
<tr>
<td>10Y-0170</td>
<td>1414</td>
<td>JR</td>
<td></td>
<td>Grab #7 rejected material, retained</td>
<td></td>
</tr>
<tr>
<td>10Y-0171</td>
<td>1417</td>
<td>JR</td>
<td></td>
<td>Grab #8 (#7 in cab) rejected mat, in scoop kept upper 6&quot;</td>
<td></td>
</tr>
<tr>
<td>10Y-0172</td>
<td>1429</td>
<td>JR</td>
<td></td>
<td>Grab #7 reject</td>
<td></td>
</tr>
<tr>
<td>10Y-0173</td>
<td>1439</td>
<td>JR</td>
<td></td>
<td>Grab #8 reject</td>
<td></td>
</tr>
<tr>
<td>10Y-0174</td>
<td>1444</td>
<td>JA</td>
<td></td>
<td>Grab #9 reject</td>
<td></td>
</tr>
</tbody>
</table>
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Date: 9/13/13
Sampling Crew: VIFTER/MAUR/KEELEY
EPA Observer: CAM IRVING
Arrival Time: 11:18

River Stage:
Water Surface Elev. (ft): 1280.25
Water Surface Elevation Source: DISPATCH

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, overfalls, roads, houses, campsites, construction, etc.)

Weather Conditions Upon Arrival
Temp (°F): 80°
Wind (mph): <5 mph
Clouds/Precipitation: CLEAR

Station Identifier: REF-87
Vessel: TAHOMA
Vessel Crew: TUKDIUNDI/FURI
C.R. Observer: FLTT
Departure Time: 17:31

Sample Location Photo IDs:
(see Photo Log for descriptions)

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photo ID</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Camera ID: ____________________________

General Notes:
- rocky bottom first 3 grabs - no recovery
- at 3:00 pm and 9th drop decision made to get remaining material at this location instead of going to REF-76.

C.R. - cultural resources
Field Supervisor Initials: [Signature] Date: 9/19/19
Sample Lead Initials: [Signature] Date: 9/13/13
Sediment/Precrwater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time</td>
<td>11:21</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>0&quot;</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
</tbody>
</table>

Sample Location:  
EASTING: 396857.34  
NORTHING: 5316357.40

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  YES/NO
2. Overlying water present?  YES/NO
3. Overlying water excessively turbid?  YES/NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  YES/NO
5. Desired penetration depth (4 to 8 inches) achieved?  YES/NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)?  YES/NO
7. Sample is:  Accepted/Rejected

Precrwater

| Cumulative Percent of Precrwater Syringe filled: | 0% |
| Accepted | Rejected |
| pH of Sediment in Sampler: | No recovery |
| Description: | |

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type:</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Color: Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td>Description:</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td>Redox Boundary:</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>100 - 1000</td>
<td>If present =&gt; Depth Below</td>
</tr>
<tr>
<td>% Silica Glass:</td>
<td></td>
<td>Sediment Surface (inches):</td>
</tr>
<tr>
<td>Odor:</td>
<td>None</td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

Amphipods:  
Debris (wig/leaves):  
Tubes:  
Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes/No</td>
</tr>
</tbody>
</table>

Sample Collected Using

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ponar</td>
<td>Shovel</td>
</tr>
</tbody>
</table>

Photo Numbers: (see Photo Log for descriptions)

| Sediment in Grab: | Time: |
| Homogenized Sample: | Time: |
| Other: | Time: |

Sediment (SE) Sample ID:  
Time:  
# Containers:  
Volume: %

Duplicate SE Sample ID:  
Time:  
# Containers:  
Volume: %

Split SE Samples (EPA/NPS/CCT):  
Time:  
# Containers:  
Volume: %

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume: %

Sample Lead Initials: MW  
Date: 9/13/13  
Field Supervisor Initials: LA  
Date: 9/17/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

URS
**Sediment/Porewater Sampling Form**  
Upper Columbia River R1/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>363101.89</td>
<td>REF-7</td>
</tr>
</tbody>
</table>

Anchor Point (max 3) 0 2 3  
Drop # 1 (2) 3 Cast Time 11:38  
Angle (< 5° max) Yes No

Sample Location:  
EASTING: 2916 50.88 (NAD_83_UTM_Zone_11_North)  
NORTHING: 5316 373.36

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any drift of sediment loss (incomplete closure, penetration at angle, illing upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Cumulative Percent of Porewater Syringe filled: 0 %

pH of sediment in Sampler: su Description: No recovery

**Sediment Characteristics**

Type: % Silt (< 0.06 mm) % Sand (1/16 - 2 mm) % Gravel % Cobble % Silica Glass

Color: Munsell Color Chart #: Description:

Redox Boundary: If present – Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide

Other:

**Amphipods:**

**Tubes:**

**Makrophytes:**

<table>
<thead>
<tr>
<th>Stratified sediment: Yes</th>
<th>Sheen Present: Yes</th>
<th>Sample Collected Using</th>
<th>Sediment in Grab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Ponar</td>
<td>Homogenized Sample:</td>
<td>Time:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Shovel</td>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID:  
Duplicate SE Sample ID:  
Split SE Samples (EPA/NPG/COT):  
Pore Water (PW) Sample ID:  

<table>
<thead>
<tr>
<th>Time:</th>
<th>Volume:</th>
<th># Containers:</th>
</tr>
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<tbody>
<tr>
<td></td>
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Sample Lead Initials: [IL]  
Date: 9/13/13  
Field Supervisor Initials: [OH]  
Date: 1/17/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River HIFS
2013 Phase 2 Sediment Study

Project Number: 38310189
Station Identifier: REF-7
Anchor Point (max 3) 0 2 3
Water Depth (feet): 45.2
Drop # 1 2 3 Cast Time 143
Sampler Penetration (inches): O No recovery
Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes
Sample Location:
EASTING: 396854.10 NAD_83_UTM_Zone_11_North
NORTHING: 5316370.39
Sample Acceptance Criteria:
1. Sample overfilled or sediment pressed against top of sampler? YES NO
2. Ovadry water present? YES NO
3. Ovadry water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 5 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: 0 %
Porewater
pH of Sediment in Sampler: su Description: No recovery

Sediment Characteristics
Type: % Silt (<1/16 mm)
% Sand (1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass
Color: Munsell Color Chart #: Description:
Redox Boundary: Present? Yes No
If present -- Depth Below: Sediment Surface (inches):
Odor: None
Other: Hydrogen sulfide

Amphipods:
Debris (twigs/leaves): Tubules: Other: Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Sheen Present:</th>
<th>Pona:</th>
<th>Shovel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>(see Photo Log for descriptions)</td>
<td>Time:</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
<td></td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: Time: # Containers: Volume: %
Duplicate SE Sample ID: Time: # Containers: Volume: %
Split SE Samples (EPA/NPS/CCT): # Containers: Volume: %
Pore Water (PW) Sample ID: Time: # Containers: Volume: %

Sample Lead Initials: MU Date: 9/13/13 Field Supervisor Initials: LH Date: 9/19/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**
*Upper Columbia River*  
*FS*  
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310180</th>
<th>Station Identifier:</th>
<th>REF-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>148</td>
</tr>
<tr>
<td>Drop #</td>
<td>0 2 3</td>
<td>Sampler Penetration (inches):</td>
<td>6</td>
</tr>
<tr>
<td>Cast Time</td>
<td>11:48</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>Sample Location:</td>
<td>NAD 83 UTM Zone 11 North</td>
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<tr>
<td></td>
<td></td>
<td>EASTING: 39684.56</td>
<td>NORTING: 5316.348.78</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of churning or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 8 inches) achieved?  
   - YES  
   - NO
6. Arly sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

**Porocwater**
Cumulative Percent of Porewater Syringe filled: 14.1%

**pH of Sediment in Syringe:** 8.13

**Sediment Characteristics:**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>Color/Soft Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60 (%&lt;1/16 mm)</td>
<td>104</td>
<td>dark greyish olive</td>
</tr>
<tr>
<td>% Sand</td>
<td>5 (1/16 - 2 mm)</td>
<td>Present? No</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td>38% (30)</td>
<td>33%</td>
<td>Shovel</td>
</tr>
<tr>
<td>% Cobbles</td>
<td>0.5%</td>
<td>Odor: None</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>12%</td>
<td>Other: Hydrogen sulfide</td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**
Debris (wgs/leaves):

**Sample Collected Using**
Van Veen  
Eckman  
Ponar  
Shovel

**Photo Numbers**

<table>
<thead>
<tr>
<th>Sediment it: Grde</th>
<th>Homogenized Sample</th>
<th>Sediment ID Sample ID</th>
<th>Duplicate SE Sample ID</th>
<th>Split SE Samples (EPJNP/CPQ):</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>101-0036</td>
<td>SE-REF-7 1035</td>
<td>101-0054</td>
<td>101-0054</td>
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</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** ML  
Date: 9/13/13  
Field Supervisor Initials: AK  
Date: 9/17/13
Sediment/Porewater Sampling Form  
Upper Columbia River RIFS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>RSE-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (m &amp; 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>67.7'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1335</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>368 77.68</td>
<td>[NAD_83_UTM_Zone_11_North]</td>
<td>NORTING: 3316 356 1280</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO
2. Overlying water present?  
   - YES  
   - NO
3. Overlying water excessively turbid?  
   - YES  
   - NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO
5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO
6. Any sign of sediment loss (incomplete closure, penetration at angle filling up to retrieval)?  
   - YES  
   - NO
7. Sample is:  
   - Accepted  
   - Rejected

Porewater  
Cumulative Percent of Porewater Syringe filled:  

| pH of Sediment in Sampler | 8.11 | Description: | No recovery |

Sediment Characteristics:

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(&lt;1/16 mm)</th>
<th>% Sand</th>
<th>(1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Murray Color Chart #</th>
<th>10Y 4/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>dark grayish olive</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redox Boundary</th>
<th>Present?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present: Depth Below Sediment Surface (inches)</td>
<td>0 5/11</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Yes</th>
<th>Tubes:</th>
<th>No</th>
<th>Macrophytes:</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris (twigs, leaves):</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Collected Using:

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Eckman  
Ponar  
Shovel

Sediment in Grab:  
Homogenized Sample:

<table>
<thead>
<tr>
<th>Photo Numbers’ (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Homogenized Sample:</td>
</tr>
</tbody>
</table>

Sediment (SE) Sample ID: SE-1-REF  
Time: 1635  
# Containers:  
Volume: 100 %

Duplicate SE Sample ID:  
Time:  
# Containers:  
Volume: %

Split SE Samples (EPA/PS/CCT):  
# Containers:  
Volume: 80 %

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume: %

Sample Lead Initials: AW  
Date: 1/13/13  
Field Supervisor Initials: J/K  
Date: 9/19/13

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>3B310189</th>
<th>Station Identifier:</th>
<th>REF-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>75'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1353</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

#### Sample Location:  
**EASTING:** 396179.30  
**NORTHING:** 5316358.72  

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No
2. Overlying water present?  
   - Yes  
   - No
3. Overlying water excessively turbid?  
   - Yes  
   - No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No
5. Dated penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No
6. Any sign of sediment loss (incomplete closure, penetration at angle, settling upon retrieval)?  
   - Yes  
   - No
7. Sample is:  
   - Accepted  
   - Rejected

#### Porewater

- **Cumulative Percent of Porewater Syringe filled:**  
- **Accepted:**  
- **Rejected:**
- **pH of Sediment in Sampler:**  
- **Description:**  
  - No recovery

#### Sediment Characteristics

- **% Silt (<1/16 mm):**
- **% Sand (1/16 - 2 mm):**
- **% Gravel:**
- **% Cobble:**
- **% Silica Glass:**
- **Color: Munson Color Chart #:**
- **Redox Boundary:**
  - Present: Yes  
  - No
- **Sediment Surface (inches):**
- **Odor:**
  - None  
- **Hydrogen sulfide:**
- **Other:**

#### Amphipods:
- **Debris (wigs/leaves):**
- **Tubes:**
- **Other:**
- **Macrophytes:**

---

**Sample Collected Using:**  
- Yan Veen
- Erickman
- Ponar
- Shovel

**Sediment in Grab:**  
**Homogenized Sample:**
- **Photo Numbers:**
  - LOI-0044
  - Time: 13520

**Sediment (SE) Sample ID:**
- Time:  
- # Containers:  
- Volume: %

**Duplicate SE Sample ID:**
- Time:  
- # Containers:  
- Volume: %

**Split SE Samples (EPA/NPS/CCT):**
- Time:  
- # Containers:  
- Volume: %

**Pore Water (PW) Sample ID:**
- Time:  
- # Containers:  
- Volume: %

---

**Sample Lead Initials: MV**  
**Date: 9/3/13**  
**Field Supervisor Initials: LD**  
**Date: 9/7/13**

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River FWS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>78'</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>140</td>
</tr>
<tr>
<td>Angle (&lt; 5' max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td>EASTING:</td>
<td>3968.86.61</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired phreatophytes depth (4 to 6 inches) achieved? **YES**
6. Any evidence of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)? **YES**
7. Sample is: Accepted

**Porewater**
Cumulative Percent of Porewater Syringe filled: __________ %

pH of Sediment in Sampler: __________ su

<table>
<thead>
<tr>
<th>Sediment Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: % Silt (&lt;1/16 mm)</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
</tr>
<tr>
<td>% Cobble</td>
</tr>
<tr>
<td>% Silica Glass</td>
</tr>
</tbody>
</table>

| Color: Munsell Color Chart #: |
| Description: |
| Redox Boundary Present? Yes | No |
| If present -- Depth Below Sediment Surface (inches): |
| Odor: None | Hydrogen sulfide |
| Other: |

| Amphipods: |
| Debris (twigs/leaves): |
| Tubes: |
| Other: |
| Macrophytes: |

| Sample Collected Using |
| Van Veen |
| Eckman |
| Ponar |
| Shovel |

| Sediment (SE) Sample ID: | Time: | # Containers: | Volume: % |
| Homogenized Sample: | Time: | Other: |

| Duplicate SE Sample ID: | Time: | # Containers: | Volume: % |

| Split SE Samples (EPA/NPS/CCT): | # Containers: | Volume: % |

| Pore Water (PW) Sample ID: | Time: | # Containers: | Volume: % |

Sample Lead Initials: **MW** Date: **9/3/12** Field Supervisor Initials: **LA** Date: **9/19/13**

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 39310189  
Station Identifier: REF-7  
Anchor Point (max 3): 1, 2, 3  
Drop #: 1, 2, 3  
Cast Time: 1435  
Water Depth (feet): 55'  
Sampler Penetration (inches): <2"  
Cultural Resources Observed?: No  
Angle (< 5°max): Yes  
No  
Sample Location: (NAD_83_UTM_Zone_11_North)  
EASTING: 346855.47  
NORTING: 5316357.62  
Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  NO
2. Overlying water present?  NO
3. Overlying water excessively turbid?  NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  NO
5. Desired penetration depth (4 to 6 inches) achieved?  NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, filling upon retrieval)?  NO
7. Sample is:  Accepted  Rejected

Porewater

Cumulative Percent of Porewater Syringe filled: ___

pH of Sediment in Sampler: ________

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>(1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Color: Munsell Color Chart #:  
Redox Boundary: Present? Yes No  
If present - Depth Below Sediment Surface (inches):

Amphipods:  
Debris (twigs/leaves):

Sample Collected Using  
Van Veen Y  
Eckman  
Ponar  
Shovel

Ratios of Sediment in Grab: Homogenized Sample:

Photo Numbers of (see Photo Log for descriptions):

EPA/NPS/CCT:  
Split SE Samples: # Containers:  
Volume: %

Pore Water (PW) Sample ID:  
Time:  
# Containers:  
Volume: %

Sample Lead Initials: ML  
Date: 9/13/13  
Field Supervisor Initials: DA  
Date: 9/13/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

#### Upper Columbia River H/F S

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>70.01</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1449</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

**Sample Location:**

- **EASTING:** 396859.07 (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 5316319.31

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of charnel or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, illing upon retrieval)? **YES** **NO**
7. Sample is: Accepted Rejected

#### Porewater

- Cumulative Percent of Porewater Syringe filled: __________ %
- Accepted: __________ Rejected: __________

#### pH of Sediment in Sampler:

- Description: __________

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Silt (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

- **Color:** Munsell Color Chart #: Description:
- **Redox Boundary:** Present?: Yes No
- **Sediment Surface:** Depth Below:

#### Amphipods:

- Debris (twigs/leaves):
- Other:

#### Tubes:

- Sample Collected Using
  - Van Veen
  - Eckman
  - Ponar
  - Shovel

#### Sediment (SE) Sample ID:

- Sediment in Grab:
- Homogenized Sample:
- Other:

#### Duplicate SE Sample ID:

- Sediment in Grab:
- Homogenized Sample:
- Other:

#### Split SE Samples (EPA/NPS/CCT):

- Sediment in Grab:
- Homogenized Sample:
- Other:

#### Pore Water (PW) Sample ID:

- Sediment in Grab:
- Homogenized Sample:
- Other:

#### Sample Lead Initials: MV Date: 9/3/13 Field Supervisor Initials: LA Date: 9/15/13

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>30510189</th>
<th>Station Identifier:</th>
<th>REF-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3 4</td>
<td>Water Depth (foot):</td>
<td>79.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>1 2 3</th>
<th>Cast Time</th>
<th>1525</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle (&lt; 5 max)</td>
<td>Yes</td>
<td>No</td>
<td>Cultural Resources Observed?</td>
</tr>
</tbody>
</table>

**Sample Location:**

**EASTING:** 396875.06 [NAD_83_UTM_Zone_11_North]  
**NORTHING:** 5316368.18

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Slight wriggling YES NO
5. Dosied penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater:**

Cumulative Percent of Porewater Syringe filed: 0%

**pH of Sediment in Sampler:** 8.69

**Description:** No recovery

**Sediment Characteristics:**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>99</td>
<td>1%</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Color:** Munsell Color Chart #: 10Y 4/2  
Description: dark grayish olive

**Redox Boundary:** Present? YES No  
If present -- Depth Below Sediment Surface (inches): 0.01

**Amphipods:** Yes  
Debris (twigs/leaves): Wood, moss  
Other:  
**Tubes:** NO  
**Macrophytes:** NO

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Sample in Grab</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>01-0049</td>
<td>01-0059</td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pionar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers:**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE-REF-7</td>
<td>01-0059</td>
<td>100</td>
<td>%</td>
</tr>
</tbody>
</table>

**Duplicate SE Sample ID:**

**Split SE Samples (EPA/NSCS):**

**Pore Water (PW) Sample ID:**

**Sample Lead Initials:** M/NO  
Date: 9/13/13  
Field Supervisor Initials: P/TH  
Date: 9/19/13

---

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>REF-7</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>12</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>1/10</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 396875.40</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? | YES | NO |
2. Overlying water present? | YES | NO |
3. Overlying water excessively turbid? | YES | NO |
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? | YES | NO |
5. Desired penetration depth (4 to 6 inches) achieved? | YES | NO |
6. Any sign of sediment loss (incomplete closure, penetration angle, tilting on retrieval)? | YES | NO |
7. Sample is: | Accepted | Rejected |

Cumulative Percent of Porewater Syringe filled: 0 %

pH of Sediment in Sampler: ___________ su

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Munsell Color Chart #:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Redox Boundary: Present? Yes | No |

If present – Depth Below Sediment Surface (inches): |

Odor: None | Hydrogen sulfide |

Other: |

Amphipods: |
Debris (twigs/leaves): |
Tubes: |
Other: |

Sample Collected Using |
Van Veen | Eckman |
Ponar | Shovel |

Sediment in Grab: (see Photo Log for descriptions) |
Homogenized Sample: |
Other: |

Photo Numbers 's |
(101-0052) |
Time: 15:50 |

Sample Lead Initials: ___________  Date: ___________  Field Supervisor Initials: ___________  Date: 9/19/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**
**Upper Columbia River RIFs**
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** REF-7

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Water Depth (feet):</th>
<th>84</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Cast Time</th>
<th>556</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Yes</th>
<th>No</th>
<th>Cultural Resources Observed?</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

**Sample Location:**  
EASTING: 396878.14  
NORTHING: 5316370.64  
(NAD_83_UTM_Zone_11_North)

**Sample Acceptance Criteria:**

1. Sampler overflowed or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting during retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

Cumulative Percent of Porewater Syringe filled:  
- Accepted  
- Rejected

pH of Sediment in Sampler:  
- Description:

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>(silt/16 mm)</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Sand</th>
<th>(1/8 - 2 mm)</th>
<th>Redox Boundary</th>
<th>Presence?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Gravel</th>
<th>Odor</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Cobble</th>
<th>Other</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silica Glass</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**  
- Debris (twigs/leaves):  
- Other:

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen Eckman</td>
<td>Homogenized Sample</td>
</tr>
<tr>
<td>Ponor</td>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers 's (see Photo Log for descriptions)</th>
<th>Sediment in Grab</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-0051</td>
<td>1559</td>
</tr>
</tbody>
</table>

**Duplicate SE Sample ID:**  
- Time:  
- # Containers:  
- Volume: %

**Split SE Samples (EPA/NPS/GCT):**  
- Time:  
- # Containers:  
- Volume: %

**Pore Water (PW) Sample ID:**  
- Time:  
- # Containers:  
- Volume: %

**Sample Lead Initials:** ML  
**Date:** 9/19/13  
**Field Supervisor Initials:** LA  
**Date:** 9/19/13

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioecology and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River FRP**

**2013 Phase 2 Sediment Study**

**Project Number:** 35310189

**Station Identifier:** SE-REF-7

**Anchor Point (max 3)**

1. 2. 3  2 3  3

**Water Depth (feet):** 801

**Drop #**

1 2 3  1 2 3  Cast Time: 14:00

**Sampler Penetration (inches):** 0  No recovery

**Angle (< 5° max):** Yes

No

**Cultural Resources Observed?** Yes

No

**Sample Location:***

**EASTING:** 396871.89

**NORTHING:** 5316372.02

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**

2. Overlying water present? **YES**

3. Overlying water excessively turbid? **YES**

4. Sediment surface relatively undisturbed, relatively flat, no sign of churning or sample washout? **YES**

5. Desired penetration depth (4 to 6 inches) achieved? **YES**

6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? **YES**

7. Sample is: Accepted

**Porewater**

Cumulative Percent of Porewater Syringe filled: 0%

**pH of Sediment in Sampler:**

**Sediment Characteristics**

**Type:**

- % Silt: (<1/16 mm)
- % Sand: (1/16 - 2 mm)
- % Gravel:
- % Cobble:
- % Silica Glass:

**Color:**

- Munsell Color Chart #:

**Redox Boundary:**

- Present? Yes

**Odor:**

- None

**Hydrogen Sulfide**

**Amphipods:**

- Tubes:
- Other:

**Macrophyles:**

- Debris, twigs, leaves:

**Sample Collected Using**

Van Veen

Eckman

Ponar

Shovel

**Sediment in Grab:**

Homogenized Sample:

Other:

**Time:**

**Photo Numbers:**

(see Photo Log for descriptions)

**Sediment (SE) Sample ID:**

**Time:**

**# Containers:**

**Volume:**

**%**

**Duplicate SE Sample ID:**

**Time:**

**# Containers:**

**Volume:**

**%**

**Split SE Samples (EP/NPS/CCT):**

**Time:**

**# Containers:**

**Volume:**

**%**

**Pore Water (PW) Sample ID:**

**Time:**

**# Containers:**

**Volume:**

**%**

Sample Lead Initials: MW  

Date: 9/13/13  

Field Supervisor Initials: DA  

Date: 9/13/13

---

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (mx 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>H-54(h) 76'</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time</td>
<td>1613</td>
<td>Sampler Penetration (inches):</td>
<td>11.5</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes</td>
<td>No</td>
<td>Cultural Resources Observed? Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location: EASTING:</td>
<td>3968 66.89 [NAD_83_UTM_Zone_11_North]</td>
<td>NORTING:</td>
<td>5316374 45</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 8 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**
- Cumulative Percent of Porewater Syringe filled: %
- Accepted Rejected
- pH of Sediment or Sample: 8.03
- Description:

**Sediment Characteristics**
- Type: % Silt 90% (<1/16 mm)
- % Sand 10% (1/16 - 2 mm)
- % Gravel 0
- % Cobble 0
- % Silica Glass 0
- Color: Munsell Color Chart # D6 4 7/2
- Redox Boundary: Present? No
- Odor: None
- Hydrogen sulfide

**Amphipods:** Debris (twigs, leaves): Other:
- Stratified sediment: Yes No
- Organic/savannah: Yes No
- Sheen Present: Yes

**Sample Collected Using**
- Van Veen
- Eckman
- Ponor
- Shovel

**Photo Numbers**
- (see Photo Log for description)
- Sediment in Grab: 101-0057 Time: 1617
- Homogenized Sample: 101-0054 Time: 1633

**Sediment (SE) Sample ID:** SE-REF-7 Time: 1635 # Containers: 8 7 Volume: 100%
**Duplicated SE Sample ID:** Time: # Containers: Volume:
**Split SE Samples (EPA, TPS, CCT):** Time: # Containers: Volume: 80%
**Pore Water (PW) Sample ID:** Time: # Containers: Volume:

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initiator: Date: 9/13/13 Field Supervisor Initial: Date: 9/19/13
### Photo Log
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-0034</td>
<td>11:20</td>
<td>Station ID</td>
</tr>
<tr>
<td>101-0035</td>
<td>11:22</td>
<td>Rock recovered in van veen</td>
</tr>
<tr>
<td>101-0036</td>
<td>11:52</td>
<td>Van veen grab no. 1</td>
</tr>
<tr>
<td>101-0037</td>
<td>12:30</td>
<td>Gravel retained in sieve</td>
</tr>
<tr>
<td>101-0038</td>
<td>13:38</td>
<td>Material in van veen grab no. 2</td>
</tr>
<tr>
<td>101-0039</td>
<td>13:40</td>
<td>Sample location</td>
</tr>
<tr>
<td>101-0040</td>
<td>13:40</td>
<td>Sample location</td>
</tr>
</tbody>
</table>

**Project:** 36310189  
**Station Identifier:** REF-7  
**Camera Serial #:** 524506601  
**Vessel:** RV Tahoma  

**Field Supervisor Initials:**  
Date: 9/11/13

**Sample Lead Initials:**  
Date: 9/13/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-0042</td>
<td>1341</td>
<td>MY</td>
<td>East</td>
<td>Sample location</td>
</tr>
<tr>
<td>101-0043</td>
<td>1342</td>
<td>MY</td>
<td>NA</td>
<td>Material scooped out of grab no. 2</td>
</tr>
<tr>
<td>101-0045</td>
<td>1356</td>
<td>SH (Shawn Hinz)</td>
<td>NA</td>
<td>Rejected grab</td>
</tr>
<tr>
<td>101-0046</td>
<td>1404</td>
<td>SH</td>
<td>NA</td>
<td>Rock in sampler</td>
</tr>
<tr>
<td>101-0044</td>
<td>1356</td>
<td>SH</td>
<td>NA</td>
<td>Rejected grab -</td>
</tr>
<tr>
<td>101-0049</td>
<td>1529</td>
<td>MY</td>
<td>NA</td>
<td>Measured grab - n &amp; e drop 4, AP1</td>
</tr>
<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Photographer</td>
<td>Photo Orientation</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>------</td>
<td>--------------</td>
<td>-------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>101-0050</td>
<td>1550</td>
<td>ST</td>
<td>NA</td>
<td>Sample washed out on one side (winned)</td>
</tr>
<tr>
<td>101-0051</td>
<td>1559</td>
<td>ST</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>101-0052</td>
<td>1617</td>
<td>MY</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>00-0053</td>
<td>1625</td>
<td>MY</td>
<td>NA</td>
<td>Scoop of drop 2 APS retained grab</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>110-0054</td>
<td>1633</td>
<td>MY</td>
<td>NA</td>
<td>Homogenized sample</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: 
Date: 9/17/13

Sample Lead Initials: 
Date: 9/13/13
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>9/16/13</td>
</tr>
<tr>
<td>Station Identifier:</td>
<td>REF-8</td>
</tr>
<tr>
<td>Vessel:</td>
<td>TRACOMA</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>IRVINE</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>1335</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>1634</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation (ft):</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td></td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Boat Position:</td>
<td>(Powered)</td>
</tr>
<tr>
<td>River Mile:</td>
<td>632</td>
</tr>
<tr>
<td>River Current:</td>
<td>(Swift)</td>
</tr>
<tr>
<td>Boat Traffic:</td>
<td>SUPPORT BOAT</td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>Yes</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>Sleep slope to rocky beach.</td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Photo ID: 102-0081</td>
<td>Time: 1338</td>
</tr>
<tr>
<td>Photo ID: 102-0082</td>
<td>Time: 1339</td>
</tr>
<tr>
<td>Photo ID: 102-0083</td>
<td>Time: 1339</td>
</tr>
<tr>
<td>Photo ID: 102-0084</td>
<td>Time: 1339</td>
</tr>
<tr>
<td>Weather Conditions Upon Arrival</td>
<td></td>
</tr>
<tr>
<td>Temp (°F):</td>
<td>77°</td>
</tr>
<tr>
<td>Wind (mph):</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Clouds/Precipitation:</td>
<td>PARTLY CLOUDY</td>
</tr>
</tbody>
</table>

General Notes:

- Sleep slope to rocky beach.
- Rocky beach
- Lake

C.R. - cultural resources

Field Supervisor Initials: [Signature] Date: 9/17/13
Sample Lead Initials: [Signature] Date: 9/16/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

#### Project Number: 36310189

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Water Depth (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 2 3</td>
<td>2 3</td>
<td>91</td>
</tr>
</tbody>
</table>

#### Drop #

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 3</td>
<td>13 43</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Angle (< 5' max)

<table>
<thead>
<tr>
<th>Angle</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Cultural Resources Observed?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Sample Location:

<table>
<thead>
<tr>
<th>EASTING</th>
<th>NORTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>391978</td>
<td>529943520</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - [ ] Yes  
   - [x] No

2. Overlying water present?  
   - [x] Yes  
   - [ ] No

3. Overlying water excessively turbid?  
   - [x] Yes  
   - [ ] No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - [x] Yes  
   - [ ] No

5. Desired penetration depth (4 to 6 inches) achieved?  
   - [x] Yes  
   - [ ] No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - [x] Yes  
   - [ ] No

7. Sample is:  
   - [ ] Accepted  
   - [x] Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### pH of Sediment in Sampler:

<table>
<thead>
<tr>
<th>pH</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
<th>Color</th>
<th>Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 1</td>
<td>95</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>5Y 4/2</td>
<td></td>
</tr>
</tbody>
</table>

#### Amphipods:

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Tubes:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Macrophytes:

<table>
<thead>
<tr>
<th>Stratified sed.</th>
<th>Sheen Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Sample Collected Using

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eckman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Photo Numbers:

<table>
<thead>
<tr>
<th>Photo Numbers (<code>see Photo Log for descriptions</code>)</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13 43</td>
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</table>

#### Sediment (SE) Sample ID:

<table>
<thead>
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<th>Time:</th>
<th># Containers</th>
<th>Volume:</th>
<th>%</th>
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<tbody>
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#### Duplicate SE Sample ID:

<table>
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<th># Containers</th>
<th>Volume:</th>
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<tbody>
<tr>
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#### Split SE Samples (EPA/NPS/CCT):

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<th>Time:</th>
<th># Containers</th>
<th>Volume:</th>
<th>%</th>
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<tbody>
<tr>
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#### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID</th>
<th>Time:</th>
<th># Containers</th>
<th>Volume:</th>
<th>%</th>
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</thead>
<tbody>
<tr>
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</table>

#### Sample Lead Initials: [W]  
Date: 9/4/13  
Field Supervisor Initials: [HA]  
Date: 9/13/13

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF 8

Anchor Point (max 3) 0 2 3
Drop # 1 2 3 Cast Time 1347
Angle (< 5°max) Yes No
Sampler Penetration (inches): 1

Sample Location: [EASTING: 391934.10 NORTING: 5299435.95]

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler?
   Accepted Yes
2. Overlying water present?
   Accepted Yes
3. Overlying water excessively turbid?
   Accepted Yes
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?
   Accepted Yes
5. Desired penetration depth (4 to 6 inches) achieved?
   Accepted Yes
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?
   Accepted Yes
7. Sample is:
   Accepted

Porewater
Cumulative Percent of Porewater Syringe filled: %
Accepted
Rejected

pH of Sediment in Sampler: %
Description:

Sediment Characteristics
Type: % Silt (%<1/16 mm)
% Sand (%1/16 - 2 mm)
% Gravel (%)
% Cobble (%)
% Silica Glass (%)

Color: Munsell Color Chart #:
Description:

Redox Present?
Boundary:
Yes No
If present -- Depth Below Sediment Surface (inches):

Odor:
None
Hydrogen sulfide
Other:

Amphipods:
Tubes:
Other:

Debris/sticks/leaves:
Sample Collected Using

Sample Lead initials / 2013 Date: 9/14/13
Field Supervisor initials / 2013 Date: 9/17/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF 8</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3) 0 2 3</td>
<td>Water Depth (feet): 515</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time 1334</td>
<td>Sampler Penetration (inches): 10.3</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 391930.36 (NAD_83_UTM_Zone_11_North) NORTHING: 5299471.21</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**
2. Overlying water present? **YES** **NO**
3. Overlying water excessively turbid? **YES** **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**
7. Sample is: **Accepted** **Rejected**

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler: 8.12</td>
<td>su</td>
<td>Description: No recovery</td>
</tr>
</tbody>
</table>

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Munsell Color Chart #: 5Y 4/2</td>
<td>Description: OLIVE GRAY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox</td>
<td>Present? Yes No</td>
<td>Boundary: If present - Depth Below Sediment Surface (inches): 0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

- *Tubers (twigs/leaves):*
- Macrophytes: __

<table>
<thead>
<tr>
<th>Stratified sediment Sand</th>
<th>Sample Collected Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Van Veen</td>
</tr>
</tbody>
</table>

**Photo Numbers**

| Sediment in Grab: | Sediment in Grab: | Homogenized Sample: |
| Time: | Time: | Time: |
|1531 | 1352 | 1944 1352 |

**Sediment (SE) Sample ID:** SE-8E-1 Time: 1531 # Containers: 7.2 Volume: 100% 80%

**Duplicate SE Sample ID:**

**Split SE Samples (EPAMPS/CCT):**

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Sample Lead Initials</th>
<th>Date</th>
<th>Field Supervisor Initials</th>
<th>Date</th>
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<tbody>
<tr>
<td>MW</td>
<td>9/16/13</td>
<td>OK</td>
<td>9/19/13</td>
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Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form

## Upper Columbia River FWS

### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Station Identifier</th>
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<tbody>
<tr>
<td>33S10188</td>
<td>REF-8</td>
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</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50.8</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
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<tbody>
<tr>
<td>2</td>
<td>1425</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Sampler Penetration (inches)</th>
<th>Cultural Resources Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>No</td>
</tr>
</tbody>
</table>

### Sample Location:

- **EASTING:** 391935.98 (NAD_83_UTM_Zone_11_North)
- **NORTING:** 5299478.77

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater

- Cumulative Percent of Porewater Syringe filled: __%
- Accepted: **YES**
- Rejected: **NO**
- pH of Sediment in Sampler: **8.17**
- Description: 

### Sediment Characteristics

- **Type:** Silt: 70% (<1/16 mm)
- **Type:** Sand: 10% (1/16 - 2 mm)
- **Type:** Gravel
- **Type:** Cobbles
- **Type:** Silica Glass:

### Sediment Characteristics (see Munsell Color Chart # 5Y 4/2)

- **Color:** Olive Gray
- **Redox Boundary:** Present: **YES**
- **Depth Below Sediment Surface (inches):** 0.2
- **Odor:** None
- **Hydrogen sulfide**

### Amphipods:

- **YES**

### Debris (tigs/leaves):

### Sample Collected Using

- **Van Veen**
- **Eckman**
- **Ponar**
- **Shovel**

### Photo Numbers

- **Sediment in Grab:** 102-0993
- **Homogenized Sample:** 102-0662
- **Other:**

### Sediment (SE) Sample ID:

- **SE-REF-8**
- **Time:** 1425
  - # Containers: 1
  - Volume: 73.4
  - Percentage: 50/100%

### Duplicate SE Sample ID:

### Split SE Samples (ERS/NPS/CCT):

- **CCT:** 102-08-8
- **Time:** 1556
  - # Containers: 2
  - Volume: 80%

### Pore Water (PW) Sample ID:

### Field Supervisor Initials: **SU**

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** REF-8

**Anchor Point (max 3):** 1  
**Water Depth (feet):** 30.4

**Drop #:** 1  
**Cast Time:** 1446  
**Sampler Penetration (inches):** 10

**Angle (< 5°/min):** Yes  
**Cultural Resources Observed:** No

**Sample Location:** 391927.95 (NAD_83_UTM_Zone_11_North)  
**EASTING:** 5299485.24  
**NORTHING:**

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**
2. Overlying water present?  
   - **NO**
3. Overlying water excessively turbid?  
   - **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**
5. Desired penetration depth (4 to 6 inches) achieved?  
   - **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - **NO**
7. Sample is:  
   - **Accepted**

---

**Cumulative Percent of Porewater Syringe filled: 8.15**  
**Description:** No recovery

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Color:**

- **Munsell Color Chart #:** 5Y 4/2  
- **Description:** OLIVE GRAY

**Redox Boundary:**

- **Present:** Yes  
- **Depth Below Sediment Surface (inches):**

**Odor:**

- **None**
- **Hydrogen sulfide**
- **Other:**

---

**Amphipods:**

- **Tubes:**
- **Macrophytes:**

---

**Sample Collected Using:**

- **Van Veen:**
- **Eckman:**
- **Ponar:**
- **Shovel:**
- **Other:**

**Photo Numbers:**

- **Sediment in Grab:**
- **Homogenized Sample:**

**Sample Lead Initials:**  
**Field Supervisor Initials:**

---

**Sample Format:**

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

---

**Date:** 9/17/13
### Project Number: 36310189
### Station Identifier: **REF S**

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Sampler Penetration (inches)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>no recovery - rock</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Water Depth (feet): 49.6

### Sampler Location:
- **EASTING:** 391939.96
- **NORTHING:** 5299478.66

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**

### Sediment Characteristics
- **Type:** % Silt: 0 (<1/16 mm), % Sand: 0 (1/16 - 2 mm), % Gravel: 100, % Cobbles: 0, % Silica Glass: 0
- **Color:** Munsell Color Chart #: Description:
- **Redox Boundary:** Present? **No**
- **Odor:** None, Hydrogen sulfide

### Amphipods:
- Other:

### Debris (wigs/leaves):

### Stratified sediment: Yes No
- Van Veen
- Eckman
- Ponder
- Shovel

### Sheen Present: Yes No

### Sediment (SE) Sample ID: _
<table>
<thead>
<tr>
<th>Time: _</th>
<th># Containers: _</th>
<th>Volume: _</th>
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<tbody>
<tr>
<td>Sediment in Grab</td>
<td>Time: 1564</td>
<td>101-0028</td>
</tr>
<tr>
<td>Homogenized Sample</td>
<td>Time: 1532</td>
<td>102-0032</td>
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<tr>
<td>Other:</td>
<td>Time: _</td>
<td># Containers: _</td>
</tr>
</tbody>
</table>

### Duplicate SE Sample ID: _
- Time: _ | # Containers: _ | Volume: _ |

### Split SE Samples (EPA/NPS/CCT):
- Time: _ | # Containers: _ | Volume: _ |

### Pore Water (PW) Sample ID: _
- Time: _ | # Containers: _ | Volume: _ |

---

Sample Lead Initials: **M**
Date: **9/16/13**
Field Supervisor Initials: **K**
Date: **9/17/13**

---

Sample ID Format:
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** REE-8

**Anchor Point (max 3):** 1 2 3  
**Water Depth (feet):** 48.2

**Drop #:** 1 2 3  
**Cast Time:** 15:10  
**Sampler Penetration (inches):** 9.11

**Angle (< 5°max):** Yes No  
**Cultural Resources Observed?** No Yes

**Sample Location:** EASTING: 391935.26  
**NORTHING:** 5299476.10

---

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - **YES**  
   - **NO**
2. Overlying water present?  
   - **YES**  
   - **NO**
3. Overlying water excessively turbid?  
   - **YES**  
   - **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - **YES**  
   - **NO**
5. Desired penetration depth (4 to 6 inches) achieved?  
   - **YES**  
   - **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upward)?  
   - **YES**  
   - **NO**
7. Sample is:  
   - **Accepted**  
   - **Rejected**

---

#### Porewater:

- **Curative Percent of Porewater Syringe filled:**
  - **Accepted**
  - **Rejected**

- **pH of Sediment Fill Syringe:** 8.31

- **Description:** No recovery

---

#### Sediment Characteristics:

- **Type:**
  - % Silt: 90  
  - % Sand: 10  
  - % Gravel: 0  
  - % Cobbles: 0  
  - % Silica Glass: 0

- **Color:**
  - Munsell Color Chart #:
  - Description:

- **Redox Boundary:**
  - Present: Yes  
  - Depth Below Sediment Surface (inches): 0.1

- **Odor:**
  - Hydrogen sulfide  
  - Other:

---

#### Amphipods:

- Yes

#### Debris (twigs/leaves):

- **Yes**

#### Sample Collected Using:

- **Van Veen:** X
- **Eckman:**
- **Ponar:**
- **Shovel:**

#### Sample Interpretation:

- Sediment in Grab:
  - Time: 1531
  - Other:

- Homogenized Sample:
  - Time: 1521
  - Other:

- **SE Sample ID:** SE-REE-8  
  - **Time:** 1531  
  - # Containers: 73-81  
  - Volume: 80%

- **Duplicate SE Sample ID:**
  - **Time:**  
  - # Containers:  
  - Volume: 

- **Split SE Samples (EPANGP/CI):**
  - # Containers: 2  
  - Volume: 80%

- **Pore Water (PW) Sample ID:**
  - **Time:**  
  - # Containers:  
  - Volume:

---

**Sample Lead Initials:** NA  
**Date:** 9/14/13  
**Field Supervisor Initials:** JA  
**Date:** 9/17/13

---

**Sample ID Format:**

- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2

---

**URS**
**Photo Log**

Upper Columbia River R/I/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>102-0080</td>
<td>13:34</td>
<td>MS</td>
<td>-</td>
<td>REF-8 Photoboard</td>
</tr>
<tr>
<td>102-0081</td>
<td>13:38</td>
<td>MS</td>
<td>North</td>
<td>Overview</td>
</tr>
<tr>
<td>102-0082</td>
<td>13:39</td>
<td>MS</td>
<td>West</td>
<td>Overview</td>
</tr>
<tr>
<td>102-0083</td>
<td>13:39</td>
<td>MS</td>
<td>South</td>
<td>Sampler at overview</td>
</tr>
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<td>102-0084</td>
<td>13:39</td>
<td>MS</td>
<td>East</td>
<td>Overview</td>
</tr>
<tr>
<td>102-0085</td>
<td>13:43</td>
<td>MS</td>
<td>West</td>
<td>Sampler in action</td>
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<td>102-0086</td>
<td>13:43</td>
<td>MS</td>
<td></td>
<td>Sample in grab</td>
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<td>102-0087</td>
<td>13:47</td>
<td>MS</td>
<td></td>
<td>AP+1 Drop #2</td>
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Field Supervisor Initials: DF
Sample Lead Initials: ML

Date: 9/10/13

URS
<table>
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<th>Description</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tr>
<td>102-0088</td>
<td>14:14</td>
<td>Drop #3 material retained Grab #1</td>
<td>MS</td>
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<td></td>
</tr>
<tr>
<td>102-0091</td>
<td>14:27</td>
<td>Drop #4 sediment in grab (AP2 Drop)</td>
<td>MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0092</td>
<td>14:32</td>
<td>Drop #4 Scoop of Sediment (AP2 Drop2)</td>
<td>MS</td>
<td></td>
<td></td>
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<tr>
<td>102-0095</td>
<td>14:46</td>
<td>Drop #5 Sediment (AP2 Drop2)</td>
<td>MS</td>
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Field Supervisor Initials: MV  Date: 9/17/13
Sample Lead Initials: MV  Date: 9/14/13
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<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>102-0096</td>
<td>14:53</td>
<td>MS</td>
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<td>Drop #5 Acrop (AP 2 Drop 2)</td>
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<tr>
<td>102-0097</td>
<td>14:53</td>
<td>MS</td>
<td></td>
<td>Unintentional photo</td>
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<tr>
<td>102-0098</td>
<td>15:04</td>
<td>MS</td>
<td></td>
<td>AP 2 Drop 4b Sediment (rock-no recovery) AP 2 Drop 2.3</td>
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<tr>
<td>102-0100</td>
<td>15:13</td>
<td>MS</td>
<td></td>
<td></td>
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<tr>
<td>102-0101</td>
<td>15:16</td>
<td>MS</td>
<td></td>
<td>Drop #7 Acrop AP 3 Drop 1</td>
</tr>
<tr>
<td>102-0102</td>
<td>15:22</td>
<td>MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-0103</td>
<td>15:32</td>
<td>MS</td>
<td></td>
<td>All drops homogenized final for sample</td>
</tr>
<tr>
<td>102-0104</td>
<td>15:11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: M  Date: 9/17/13
Sample Lead Initials: M  Date: 9/14/13

URS
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>REF-9</td>
</tr>
<tr>
<td>Date:</td>
<td>9/19/13</td>
</tr>
<tr>
<td>Vessel:</td>
<td>TAHOMA</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>VETTED/PANTHEER/SWART</td>
</tr>
<tr>
<td>Vessel Crew:</td>
<td>TRUDISH/SCHARR/HANSON</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>WILKINSON</td>
</tr>
<tr>
<td>C.R. Observer:</td>
<td>WHITE</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>12:59</td>
</tr>
<tr>
<td>Departure Time:</td>
<td>16:00</td>
</tr>
<tr>
<td>River Stage:</td>
<td>C.R. Observer:</td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td>1,281.9 (C.R.)</td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td>BCR WEBSITE</td>
</tr>
<tr>
<td>Site Information:</td>
<td>River Current:</td>
</tr>
<tr>
<td>Boat Position:</td>
<td>(Powered)</td>
</tr>
<tr>
<td>River Mile:</td>
<td>604</td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>Yes</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>Rock outcrops, small cobble beach.</td>
</tr>
</tbody>
</table>

| Photo ID: | 104-0174 |
| Camera ID: | 525 504601 |
| Time: | 13:10 |
| Photo ID: | 104-0175 |
| Time: | 13:11 |

General Notes:
- AREA IS A ROCKY CREEK.
- Adjusted location w/ 150 circle due to large cobbles at location of actual station.
- Collected 4 chemistry samples SE-REF-9 and 2 buckets of 1.5 gallons/bucket.
- Abandoned station after 3 attempts.

C.R. - cultural resources

Field Supervisor Initials | C.R. - cultural resources | Date 9/19/13
Sample Lead Initials | Date | 9/19/13
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36319189</th>
<th>Station Identifier: REF-9</th>
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</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td></td>
</tr>
<tr>
<td>Drop #</td>
<td></td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td></td>
</tr>
<tr>
<td>Sampler Location</td>
<td></td>
</tr>
<tr>
<td>Sample Location EASTING:</td>
<td></td>
</tr>
<tr>
<td>Cumulative Percent</td>
<td></td>
</tr>
<tr>
<td>pH of Sediment in Sampler</td>
<td></td>
</tr>
<tr>
<td>Sediment Characteristics</td>
<td></td>
</tr>
<tr>
<td>Type:</td>
<td></td>
</tr>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td></td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td></td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
</tr>
<tr>
<td>% Cobble</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
</tr>
<tr>
<td>Sediment in Grab</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td></td>
</tr>
<tr>
<td>Amphipods:</td>
<td></td>
</tr>
<tr>
<td>Debris (twigs/leaves):</td>
<td></td>
</tr>
<tr>
<td>Stratified sediment: Yes</td>
<td></td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td></td>
</tr>
<tr>
<td>Photo Numbers:</td>
<td></td>
</tr>
<tr>
<td>Sediment in Grab:</td>
<td></td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** AM  
Date: 9/19/13  
Field Supervisor Initials: AN  
Date: 9/19/13

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>36</td>
</tr>
<tr>
<td>Drop #:</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Cast Time:</td>
<td>1344</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>- Empty</td>
</tr>
<tr>
<td>Angle (&lt; 5° max) Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 360851.09</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (1 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (rice or possible penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: Accepted

Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: su

Sediment Characteristics:

- **% Silt**: 5 (<1/16 mm)
- **% Sand**: 35 (1/16 - 2 mm)
- **% Gravel**: 60
- **% Cobbles**: 
- **% Silica Glass**: 

Munsell Color Chart #: Description:

<table>
<thead>
<tr>
<th>Color Attribute</th>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riprap Boundary</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

Amphibious:

- **Debris (twigs/leaves)**: 
- **Tubes**:
- **Other**: 

Macrophytes:

- **Sample Collected Using**: Van Veen X
- **Sediment in Grab**: 184-0178
- **Homogenized Sample**: Time: 1349

- **Sediment (SE) Sample ID**: 
- **Duplicate SE Sample ID**: 
- **Split SE Samples (EPA/NPS/CCT)**: 

- **Pore Water (PW) Sample ID**: 

Sample Lead Initials: MW Date: 9/16/13

Field Supervisor Initials: OA Date: 9/26/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REJ-9

Anchor Point (max 3) 0 2 3 Water Depth (feet): 26.8
Drop # 1 2 3 Cast Time 1351 Sampler Penetration (inches): -
Angle (< 5° max) Yes No Cultural Resources Observed? No Yes

Sample Location:
EASTING: 360861.78 (NAD_83_UTM_Zone_11_North)
NORTING: 5313929.37

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sample?
   Yes No
2. Overlying water present?
   Yes No
3. Overlying water excessively turbid?
   Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of churning or sample washout?
   Yes No
5. Desired penetration depth (4 to 6 inches) achieved?
   Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)?
   Yes No
7. Sample is:
   Accepted Rejected

Parameter Cumulative Percent of Porewater Syringe filled: ___% Accepted Rejected
pH of Sediment in Sampler: __________ Description:

Sediment Characteristics
Type: % Silt <1/16 mm
% Sand 1/16 - 2 mm
% Gravel
% Cobbles 100
% Silica Glass:

Color: Munsell Color Chart #: Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods: Debris (twigs/leaves):
Tubes: Other:
Macrophytes:

Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Photo Numbers’
(see Photo Log for descriptions)

Sediment in Grab: Time:
Homogenized Sample: Time:
Other: Time:

Sediment (SE) Sample ID:
Duplicate SE Sample ID:
Split SE Samples (EPA/NPS/CCT):
Pore Water (PW) Sample ID:

Sample Lead Initials MW Date: 9/19/13
Field Supervisor Initials AH Date: 9/20/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>REF-9</td>
</tr>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>6.4'</td>
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<tr>
<td>Drop #</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Angle (&lt; 5°max):</td>
<td>Yes</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 360850.52</td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against lip of sampler?</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sampling voids?</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration angle, tilting upon retrieval)?</td>
<td>Yes</td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted</td>
</tr>
<tr>
<td>Porewater</td>
<td></td>
</tr>
<tr>
<td>Cumulative Percent of Porewater Syringe filled:</td>
<td>0%</td>
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<tr>
<td>pH of Sediment in Sampler:</td>
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<tr>
<td>Sediment Characteristics</td>
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</tr>
<tr>
<td>Type:</td>
<td>% Silt:</td>
</tr>
<tr>
<td></td>
<td>% Sand:</td>
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<tr>
<td></td>
<td>% Gravel:</td>
</tr>
<tr>
<td></td>
<td>% Cobbles:</td>
</tr>
<tr>
<td></td>
<td>% Silica Glass:</td>
</tr>
<tr>
<td>Amphipods:</td>
<td>Tubes:</td>
</tr>
<tr>
<td>Debris/twigs/leaves:</td>
<td></td>
</tr>
<tr>
<td>Macrophytes:</td>
<td></td>
</tr>
<tr>
<td>Stratified sediment:</td>
<td>Yes</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>SE-1-B2-9</td>
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<tr>
<td>Sediment in Grab:</td>
<td>154-0179</td>
</tr>
<tr>
<td>Homogenized Sample:</td>
<td>154-0190</td>
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<tr>
<td>Sediment in Sediment (SE) Sample ID:</td>
<td>1525</td>
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<tr>
<td>Duplicate SE Sample ID:</td>
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<tr>
<td>Sediment in Grab:</td>
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</tr>
<tr>
<td>Homogenized Sample:</td>
<td></td>
</tr>
<tr>
<td>Sediment in Sediment (SE) Sample ID:</td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
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</tr>
</tbody>
</table>

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: mW  
Date: 7/6/13  
Field Supervisor Initials: DA  
Date: 9/5/13  

[URS Logo]
### Sediment/Porewater Sampling Form

**Upper Columbia River AIFS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>30310183</td>
<td>REF-9</td>
</tr>
</tbody>
</table>

**Anchor Point (max 3):**  
1 2 3  
**Drop #:** 2 3  
**Cast Time:** 1418  
**Water Depth (ft):** 6.6'  
**Sampler Penetration (inches):** 3" rocks

**Angle (< 5° max):** Yes  
**Cultural Resources Observed:** No Yes

**Sample Location:**  
EASTING: 360880.22  
NORTHING: 531,394.29

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No
2. Overlying water present?  
   - Yes  
   - No
3. Overlying water excessively turbid?  
   - Yes  
   - No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No
5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No
7. Sample is:  
   - Accepted
   - Rejected

**Cumulative Percent of Porewater Syringe filled:** ___%  
**pH of Sediment in Sampler:** ___

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Slit (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>15</td>
<td>10</td>
<td>75</td>
<td>0</td>
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**Color:**  
**Munsell Color Chart #:**  
**Description:**

<table>
<thead>
<tr>
<th>Redox Boundary:</th>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**Odor:**  
- None
- Other: Hydrogen sulfide

### Amphipods:
- Debris/twigs/leaves:
- Tubes:
- Other:
- Macrophytes:

### Stratified Sediment:
- Yes  
- No
- Sheen Present:
- Yes  
- No

### Sample Collected Using Van Veen:
- Sediment in Grab:  
  - NPS-0182  
  - Time: 1419

### Sediment (SE) Sample ID:
- Time: 
- # Containers: 
- Volume:

### Duplicate SE Sample ID:
- Time: 
- # Containers: 
- Volume:

### Split SE Samples (EPA/NPS/CCT):
- Time: 
- # Containers: 
- Volume:

### Pore Water (PW) Sample ID:
- Time: 
- # Containers: 
- Volume:

### Sample Lead Initials:  
**Date:** 9/11/13  
**Field Supervisor Initials:**  
**Date:** 9/20/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment: Forewater Sampling Form

**Upper Columbia River RI/FS**  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
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<tbody>
<tr>
<td>38310188</td>
<td>REF- 9</td>
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</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>24</td>
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<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1422</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5°max)</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3''</td>
</tr>
</tbody>
</table>

**Cultural Resources: Observed?**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collection Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is:  

**Cumulative Percent of Porewater Syringe filled:** **Accepted**  
**Rejected**  

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

**Sediment Characteristics:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Color of Sediment in Sampler:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mugset Color Chart #:</td>
<td></td>
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<tr>
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</tbody>
</table>

**Redox Boundary:**

<table>
<thead>
<tr>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Mucous:**

<table>
<thead>
<tr>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Debris (twigs/leaves):**

<table>
<thead>
<tr>
<th>Present?</th>
<th>Depth Below Sediment Surface (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Photo Numbers’s (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eckman</td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers: 114-0183**  
**Time: 1422**

**Sediment in Grab:**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Homogenized Sample:**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Other:**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Sediment (SE) Sample ID:**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Duplicate SE Sample ID:**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Split SE Samples (EPA/NPS/CCT):**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

**Pore Water (PW) Sample ID:**

<table>
<thead>
<tr>
<th>Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

---

**Note:**  
*Sediment at Station 1-C2 (Chemistry only)*  
*SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)*  
*PW-1-B2: Pore Water at Station 1-B2*
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 (3)</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>5.6'</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>3' - Rock</td>
</tr>
<tr>
<td>Site:</td>
<td>Ref - 9</td>
</tr>
<tr>
<td>Drop #: 1 2 3</td>
<td>Casel Time: 1427</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>No Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>5.6'</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 360880.92, NAD 83 UTM Zone 11 North</td>
</tr>
<tr>
<td>Sample ID Form at:</td>
<td>SE-1-C2: Sediment at Station 1-C2 (Chemistry only)</td>
</tr>
<tr>
<td>Date:</td>
<td>9/19/13</td>
</tr>
</tbody>
</table>

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of churning or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (sample closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: Accepted

**Porewater:**

Cumulative Percent of Porewater Syringe filled: ___%  Accepted  Rejected

pH of Sediment in Sampler: _

Description: _

**Sediment Characteristics:**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (1/16 mm)</th>
<th>Color: Munsell Color Chart #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Sand (1/16 - 2 mm)</th>
<th>Redox Boundary:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present: Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gravel</th>
<th>Odor: None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Cobbles</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Silica Glass</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Time:</td>
<td>Time:</td>
<td>Time:</td>
</tr>
<tr>
<td>Eddyman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponar Shovel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers:**

(see Photo Log for descriptions)

**Sediment (SE) Sample ID:** Time: _ # Containers: _ Volume: _

**Duplicate SE Sample ID:** Time: _ # Containers: _ Volume: _

**Split SE Samples (EPA/NPS/CCT):** Time: _ # Containers: _ Volume: _

**Pore Water (PW) Sample ID:** Time: _ # Containers: _ Volume: _

Sample Lead Initials: _ Date: 9/19/13 _

Field Supervisor Initials: _ Date: 9/29/13 _

Sample ID Format:

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>REF-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet):</td>
<td>30.1</td>
</tr>
<tr>
<td>Drop #</td>
<td>Cast Time</td>
<td>1435</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Sample Location:  
EASTING: 3608676  
NORTHING: 5313936.10

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  
   - YES  
   - NO

2. Overlying water present?  
   - YES  
   - NO

3. Overlying water excessively turbid?  
   - YES  
   - NO

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - YES  
   - NO

5. Desired penetration depth (4 to 6 inches) achieved?  
   - YES  
   - NO

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - YES  
   - NO

7. Sample is:  
   - Accepted  
   - Rejected

Porewater

Cumulative Percent of Porewater Syringe filled: ___%  
Accepted | Rejected

pH of Sediment in Sampler: ___  
Description:

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt (&lt;1/16 mm)</td>
<td>Munsell Color Chart #:</td>
<td>Description:</td>
</tr>
<tr>
<td>% Sand (1/16 - 2 mm)</td>
<td>Redox Boundary:</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
</tr>
<tr>
<td>% Gravel</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>% Cobble</td>
<td>Odor:</td>
<td>None</td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>Other:</td>
<td>Hydrogen sulfide</td>
</tr>
</tbody>
</table>

Amphipods:  
- Tubes:  
- Other:

Stratified sediment: Yes | No  
Sieved Present: Yes | No

Sample Collected Using

<table>
<thead>
<tr>
<th>Sample</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in Grab:</td>
<td>Homogenized Sample:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Photo Numbers 's

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

Sample Lead Initials: __/__/13  
Date: 9/19/13  
Field Supervisor Initials: __/__/13  
Date: 9/20/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

URS
### Sediment/Porewater Sampling Form
#### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td></td>
</tr>
<tr>
<td>Drop # 1</td>
<td>2</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>O</td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 360861.24</td>
</tr>
</tbody>
</table>

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? Yes No
2. Overlying water present? Yes No
3. Overlying water excessively turbid? Yes No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes No
5. Desired penetration depth (4 to 6 inches) achieved? Yes No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes No
7. Sample is: Accepted Rejected

#### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>su</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

#### Sediment Characteristics

- **Type:**
  - % Silt: (%<1/16 mm)
  - % Sand: (%1/16 - 2 mm)
  - % Gravel: |
  - % Cobbles: |
  - % Silica Glass: |

- **Color:** Munsell Color Chart #.
- **Redox Boundary:**
  - Present: Yes No
  - If present -- Depth Below Sediment Surface (inches):

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Tubes:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Other:</td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Photo Numbers’s (see Photo Log for descriptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>Eckman</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Ponor</td>
<td>Shovel</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stratified sediment:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheen Present:</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume: %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Lead Initials:</th>
<th>Date: 9/1/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Supervisor Initials:</td>
<td>Date: 9/20/13</td>
</tr>
</tbody>
</table>

---

Sample ID Format:
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Identifier:</td>
<td>RFF-9</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>20.21</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>C-4 reel</td>
</tr>
<tr>
<td>Water Depth (feet):</td>
<td>20.21</td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>C-4 reel</td>
</tr>
</tbody>
</table>

**Sample Location:**

- **EASTING:** 360841.77
- **NORTHING:** 5315934.24
- **Station Identifier:** RFF-9
- **Water Depth (feet):** 20.21
- **Sampler Penetration (inches):** C-4 reel
- **Cultural Resources Observed:** Yes

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? Yes / No
2. Overlying water present? Yes / No
3. Overlying water excessively turbid? Yes / No
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? Yes / No
5. Desired penetration depth (4 to 6 inches) achieved? Yes / No
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? Yes / No
7. Sample is: Accepted / Rejected

### Porewater

- Cumulative Percent of Porewater Syringe filled: %
- pH of Sediment in Sampler: Description:

### Sediment Characteristics

- Type: % Silt (1/16 mm), % Sand (1/16 - 2 mm), % Gravel, % Cobble, % Gabbles, % Silica Glass, % Silica Glass:
- Color: Description:
- Redox Boundary: Present? Yes / No
- Depth Below Sediment Surface (inches):
- Odor: Hydrogen sulfide, Other:
- Amphipods:
- Debris (twigs/leaves):
- Macrophytes:
- Sample Collected Using:
  - Van Veen
  - Eckman
  - Ponor
  - Shovel
- Sediment in Grab:
- Homogenized Sample:
- Other:
- Photo Numbers:

### Sample Lead Information

- Sample ID Format:
  - SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
  - SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
  - PW-1-B2: Pore Water at Station 1-B2
- Sample Lead Initials: *W*
- Date: 9/24/13
- Field Supervisor Initials: *O*
- Date: 9/24/13

---

*URS*
### Sediment/Porewater Sampling Form

#### Upper Columbia River RI/FS

**2013 Phase 2 Sediment Study**

**Project Number:** 36310169

#### Sample Location:

<table>
<thead>
<tr>
<th>EASTING</th>
<th>360857.06 (NAD_83_UTM_Zone_11_North)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTHING</td>
<td>5313919.17</td>
</tr>
</tbody>
</table>

**Station Identifier:** REF-9

**Water Depth (feet):** 46.51

**Sampler Penetration (inches):** 3

**Cultural Resources Observed?** No

#### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES
2. Overlying water present? YES
3. Overlying water excessively turbid? NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channelling or sample washout? YES
5. Desired penetration depth (4 to 6 inches) achieved? NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? NO
7. Sample is: Accepted

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

#### pH of Sediment in Sampler:

**Cumulative Percent:**

**Description:**

#### Sediment Characteristics:

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(&lt;1/16 mm)</td>
<td>(1/16 - 2 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Color:** Munsell Color Chart #:

**Redox Boundary:**

**Sediment Surface:**

**Pit/Er?** Yes

**If present -- Depth Below:**

**Odor:** None

**Other:** Hydrogen sulfide

#### Amphipods:

**Debris/trash/leaves:**

**Other:**

#### Sample Collected Using:

<table>
<thead>
<tr>
<th>Stratiﬁed sediment</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sheen Present</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sample ID Format:</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Photo Numbers 's</th>
<th>Sediment (SE) Sample ID</th>
<th>Duplicate SE Sample ID</th>
<th>Split SE Samples (EPA/NPS/CCT)</th>
<th>Pore Water (PW) Sample ID</th>
</tr>
</thead>
</table>

**Sample Lead Initials:** NW

**Date:** 7/14/13

**Field Supervisor Initials:** CH

**Date:** 7/20/13
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS

#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>3631015</th>
<th>Station Identifier:</th>
<th>REF-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>(4) 1 2 3</td>
<td>Water Depth (feet):</td>
<td>S. 41</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1807</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

#### Sample Location:

**EASTING:** 300881.44 (NAD_83_UTM_Zone_11_North)  
**NORTHING:** 5313943.04

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Minimum sampler penetration depth (6 inches) obtained? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

### Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH of Sediment in Sampler:</td>
<td>su</td>
<td>Description:</td>
</tr>
</tbody>
</table>

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type: % Silt</th>
<th>Color:</th>
<th>Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Sand</td>
<td>Redox Boundary</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Cobbles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

<table>
<thead>
<tr>
<th>Debris/twigs/leaves:</th>
<th>Tubes:</th>
<th>Other:</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment: Yes No</td>
<td>Sample Collected Using</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheen Present. Yes No</td>
<td>Van Veen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eckman</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ponar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shovel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment (SE) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
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</table>

### Duplicate SE Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

### Split SE Samples (EPA/NPS/CCT):

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
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<th>%</th>
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</thead>
</table>

### Pore Water (PW) Sample ID:

<table>
<thead>
<tr>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
<th>%</th>
</tr>
</thead>
</table>

### Sample Lead Initials: M.W.  
**Date:** 9/19/13  
**Field Supervisor Initials:** K.H.  
**Date:** 9/29/13

---

Sample ID Format:  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** DEF-Q  
**Anchor Point (max 3)**  
**Water Depth (feet):** 5.1

---

**Drop #**  
**Cast Time**

---

**Sample Location**  
**EASTING:** 360881.26  
**NORTHING:** 5313941.98

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Yes  
   - No

2. Overlying water present?  
   - Yes  
   - No

3. Overlying water excessively turbid?  
   - Yes  
   - No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No

5. Minimum sampler penetration depth (6 inches) obtained?  
   - Yes  
   - No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No

7. Sample is:  
   - Accepted
   - Rejected

---

**Porewater**  
Cumulative Percent of Porewater Syringe filled:  
Accepted  
Rejected

**pH of Sediment in Sampler:**  
Description:

---

**Sediment Characteristics**

**Type:**  
- % Silt:  
- % Sand:  
- % Gravel:  
- % Cobbles:  
- % Silica Glass:

**Color:** Munsell Color Chart #:  
Description:

**Redox Boundary:**  
- Present?: Yes  
- No

**Odor:**  
- None  
- Hydrogen sulfide  
- Other:

---

**Amphipods:**  
- Debris (twigs/leaves):

**Tubes:**  
- Other:

**Macrophytes:**

---

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Method</th>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponar</th>
<th>Shovel</th>
<th>Sediment in Grab</th>
<th>Homogenized Sample</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Photo Numbers *s**

- Sediment in Grab: 104-0188  
- Time: 1516

---

**Sediment (SE) Sample ID:**  
Time:  
# Containers:  
Volume: %

**Duplicate SE Sample ID:**  
Time:  
# Containers:  
Volume: %

**Split SE Samples (EPA/NPS/CCT):**

**Pore Water (PW) Sample ID:**  
Time:  
# Containers:  
Volume: %

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: NW  
Date: 9/6/13

Field Supervisor Initials: OK  
Date: 9/20/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0173</td>
<td>13:07</td>
<td>Michelle Stegner</td>
<td></td>
<td>Photoboard REF-9</td>
</tr>
<tr>
<td>104-0177</td>
<td>13:20</td>
<td>MS</td>
<td></td>
<td>Sediment in Lexan Tub Reflected Sample API Drop 1</td>
</tr>
<tr>
<td>104-0174</td>
<td>13:10</td>
<td>MS</td>
<td>South</td>
<td>Overview</td>
</tr>
<tr>
<td>104-0178</td>
<td>13:47</td>
<td>MS</td>
<td></td>
<td>Empty Grab API Drop 2 (*2)</td>
</tr>
<tr>
<td>104-0175</td>
<td>13:11</td>
<td>MS</td>
<td>Northwest</td>
<td>Overview</td>
</tr>
<tr>
<td>104-0179</td>
<td>13:58</td>
<td>MS</td>
<td></td>
<td>Sediment in Grab API Drop 1 (*4)</td>
</tr>
<tr>
<td>104-0176</td>
<td>13:32</td>
<td>MS</td>
<td></td>
<td>Sediment in Grab API Drop 1 (*1)</td>
</tr>
<tr>
<td>104-0180</td>
<td>14:03</td>
<td>MS</td>
<td></td>
<td>Sediment in Scoop API Drop 1 (*4)</td>
</tr>
</tbody>
</table>

Field Supervisor Initials: 04 Date: 9/19/13
Sample Lead Initials: 1W Date: 9/19/13
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>104-0181</td>
<td>14:12</td>
<td>MS</td>
<td></td>
<td>Gravel in Lexan Tub</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AP2 Drop 1 (±4)</td>
</tr>
<tr>
<td>104-0183</td>
<td>14:19</td>
<td>MS</td>
<td></td>
<td>Sediment in Grab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AP2 Drop 2 (±5)</td>
</tr>
<tr>
<td>104-0184</td>
<td>14:24</td>
<td>MS</td>
<td></td>
<td>Sediment in Grab</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AP2 Drop 3 (±6)</td>
</tr>
<tr>
<td>104-0185</td>
<td>14:59</td>
<td>MS</td>
<td></td>
<td>Rock in Grab AP3 Drop 2</td>
</tr>
<tr>
<td>104-0187</td>
<td>15:03</td>
<td>MS</td>
<td></td>
<td>Rock in Grab AP4 Drop 1</td>
</tr>
<tr>
<td>104-0188</td>
<td>15:09</td>
<td>MS</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AP4 Drop 3 (±12)</td>
</tr>
</tbody>
</table>

No photo for #7 (empty)
### Photo Log

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project: 36310189</th>
<th>Station Identifier: REF-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 9/19/2013</td>
<td>Vessel: Tahoma MV/GP/MS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Camera Serial #: S27501601</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0189</th>
<th>Time: 15:22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MS</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description: Rejected Sample in Lexan Tub</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID: 104-0190</th>
<th>Time: 15:33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer: MS</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description: Sieved &amp; Homogenized Sample for Chem &amp; BA</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo ID:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photographer:</td>
<td></td>
</tr>
<tr>
<td>Photo Orientation:</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td></td>
</tr>
</tbody>
</table>

Field Supervisor Initials: [Signature] Date: 9/19/13

Sample Lead Initials: [Signature] Date: 9/19/13
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF 96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 9/19/13</td>
<td>Vessel: TAHOMA</td>
</tr>
<tr>
<td>Sampling Crew: VETER/PANTHER/SFGLA</td>
<td>Vessel Crew: TRUDEAU/SCHAEFER/HARSALY</td>
</tr>
<tr>
<td>EPA Observer: WILKENNIL</td>
<td>C.R. Observer: WHITE</td>
</tr>
<tr>
<td>Arrival Time: 1620</td>
<td>Departure Time: 1700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>River Stage:</th>
<th>Weather Conditions Upon Arrival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Surface Elev. (ft): 1282.50</td>
<td>Temp (°F): 80°</td>
</tr>
<tr>
<td>Water Surface Elevation Source: USBR</td>
<td>Wind (mph): &lt;10</td>
</tr>
</tbody>
</table>

Site Information:

<table>
<thead>
<tr>
<th>Boat Position: (Powered) (Anchored)</th>
<th>River Current: (Swift) (Eddie) (Calm) (Ripple)</th>
<th>Boat Traffic: SUPPORT BOAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Mile: 609</td>
<td></td>
<td>NPS</td>
</tr>
<tr>
<td>Water Surface: (Calm) (Small Waves) (Choppy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Vegetation Present: Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was Vegetation Removed: Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>Rocky point with steep cliffs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cobble beach on SW Edge.</td>
<td></td>
</tr>
</tbody>
</table>

Sample Location Photo IDs:

<table>
<thead>
<tr>
<th>Camera ID: 527506601</th>
<th>Photo ID: 104-0192 Time: 1631</th>
<th>Photo ID: 104-0194 Time: 1632</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Photo ID: 104-0193 Time: 1631</td>
<td>Photo ID: 104-0197 Time: 1635</td>
</tr>
</tbody>
</table>

General Notes:

Rocky Point - made 3 attempts and collected rocks. No evidence of any sediment.
TAHOMA experiencing hydraulic issues. Went to shore @ 1700.

C.R. - cultural resources

Field Supervisor Initials MIK Date: 9/19/13
Sample Lead Initials MV Date: 9/19/13
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36910189  
**Station Identifier:** REF-9b  
**Water Depth (feet):** 23  
**Water Depth (feet):** 23

**Anchor Point (max 3):** 0 2 3  
**Drop #:** 0 2 3  
**Casts Time:** 1634  
**Sampler Penetration (inches):** 2" Rocks Cobbler

**Sample Location:** 363041.31 [NAD_83_UTM_Zone_11_North]  
**EASTING:** 5310356.52  
**NORTHING:**

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - [ ] Yes  
   - [ ] No

2. Overlying water present?  
   - [ ] Yes  
   - [ ] No

3. Overlying water excessively turbid?  
   - [ ] Yes  
   - [ ] No

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - [ ] Yes  
   - [ ] No

5. Minimum sampler penetration depth (6 inches) obtained?  
   - [ ] Yes  
   - [ ] No

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - [ ] Yes  
   - [ ] No

7. Sample is:  
   - [ ] Accepted
   - [ ] Rejected

**Porewater**

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
</table>

**pH of Sediment in Sampler:**  

**Sediment Characteristics**

- **Type:**  
  - % Silt: (1/16 mm)
  - % Sand: (1/16 - 2 mm)
  - % Gravel:  
  - % Cobble:  
  - % Silica Glass:  

**Color:** Munsell Color Chart #:  
Description:

**Redox Present?**  
- [ ] Yes
- [ ] No

**Boundary If present -- Depth Below Sediment Surface (inches):**

**Odor:**  
- [ ] None
- [ ] Hydrogen sulfide
- [ ] Other:

**Amphipods:**  
**Debris/leaves:**  
**Tubes:**  
**Other:**  
**Macrophytes:**

**Stratified sediment:**  
- [ ] Yes
- [ ] No

**Sheen Present:**  
- [ ] Yes
- [ ] No

**Sample Collected Using:**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen</td>
<td>1635</td>
<td>10.4-0186</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time</td>
<td></td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Ponar</td>
<td>Time</td>
<td></td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Time</td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Photo Numbers'**

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID</th>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID</td>
<td>Time</td>
<td># Containers</td>
<td>Volume</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT)</td>
<td>Time</td>
<td># Containers</td>
<td>Volume</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID</td>
<td>Time</td>
<td># Containers</td>
<td>Volume</td>
</tr>
</tbody>
</table>

**Sample Lead Initials:** AW  
**Date:** 9/19/13  
**Field Supervisor Initials:** DA  
**Date:** 9/20/13

---

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2

---

**URS**
SetHrii#ii/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-9b</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>0</th>
<th>2</th>
<th>3</th>
<th>Water Depth (feet):</th>
<th>3.5'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Cast Time</td>
<td>16:40</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**
- **EASTING:** 363011.20
- **NORTHING:** 5310368.06

**Sample Acceptance Criteria:**
1. Sampler overfilled or sediment pressed against top of sampler? **YES** / **NO**
2. Overlying water present? **YES** / **NO**
3. Overlying water excessively turbid? **YES** / **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES** / **NO**
5. Minimum sampler penetration depth (5 inches) obtained? **YES** / **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** / **NO**
7. Sample is: **Accepted** / **Rejected**

**Porewater:**
- Cumulative Percent of Porewater Syringe filled: ___%  
  - Accepted / Rejected

**pH of Sediment in Sampler:** 
- Description:

**Sediment Characteristics:**
- **Type:** % Silt (%<1/16 mm)  
- Color: Munsell Color Chart #:  
- Description:
- % Sand (%1/16 - 2 mm)  
- Redox Boundary: Present? **Yes** / **No**  
- If present -- Depth Below Sediment Surface (inches):
- % Gravel  
- % Cobbles  
- % Silica Glass:

**Amphipods:**
- Debris (twigs/leaves):  
- Other:

**Sample Collected Using:**
- Sediment in Grab: Van Veen  
- Homogenized Sample: Eckman  
- Other: Ponar

**Photo Numbers:**
(see Photo Log for descriptions)

**Sediment (SE) Sample ID:** 
- Time: ____  
- # Containers: ____  
- Volume: ____ %

**Duplicate SE Sample ID:** 
- Time: ____  
- # Containers: ____  
- Volume: ____ %

**Split SE Samples (EPA/NPS/CCT):** 
- # Containers: ____  
- Volume: ____ %

**Pore Water (PW) Sample ID:** 
- Time: ____  
- # Containers: ____  
- Volume: ____ %

Sample Lead Initials: **MV**  
Date: 9/19/13  
Field Supervisor Initials: **104**  
Date: 9/25/13

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
**Sediment/Porewater Sampling Form**  
**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** REF-96

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>0</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cast. Time</td>
<td>1,49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td>3/4 Rocks-cobbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (&lt;5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**  

- **EASTING:** 363016.15  
- **NORTHING:** 5310392.33  
- **Sample Identifier:** Water Depth (feet): 43

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**  
3. Overlying water excessively turbid? **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
5. Minimum sampler penetration depth (3 inches) obtained? **YES**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
7. Sample is: **Accepted**  

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:** 50%  
- **pH of Sediment in Sampler:** 6.5  

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Redox Boundary</td>
<td>Odor</td>
<td>Description:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>If present -- Depth Below Sediment Surface (inches):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amphipods:**  
Debris (twigs/leaves):  
Other:  
**Tubes:**  
Other:  
**Macrophytes:**  

**Stratified sediment:** Yes  
**Sheen Present:** Yes  
**Sample Collected Using:**  
- Van Veen  
- Eckman  
- Ponor  
- Ponar  
- Shovel  

**Photo Numbers:**  
- Sediment in Grab: Photograph 104-C099  
- Homogenized Sample: Photograph 104-C099  
- Other: Photograph 104-C099  
- Time: 1:52

**Sediment (SE) Sample ID:**  
**Duplicate SE Sample ID:**  
**Split SE Samples (EPA/NPS/CCT):**  
**Pore Water (PW) Sample ID:**  

<table>
<thead>
<tr>
<th>Time</th>
<th># Containers</th>
<th>Volume</th>
<th>%</th>
</tr>
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**Sample Lead Initials:** MW  
**Date:** 9/19/13  
**Field Supervisor Initials:** JON  
**Date:** 9/20/13  

**Sample ID Format:**  
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2  

**URS**
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<thead>
<tr>
<th>Photo ID</th>
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<th>Photo Orientation</th>
<th>Camera Serial #</th>
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<tr>
<td>104-0191</td>
<td>16:29</td>
<td>Photoboard</td>
<td>ms</td>
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<td>327506001</td>
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<tr>
<td>104-0192</td>
<td>16:30</td>
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<tr>
<td>104-0193</td>
<td>16:31</td>
<td>Overview</td>
<td></td>
<td>south</td>
<td></td>
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<tr>
<td>104-0194</td>
<td>16:32</td>
<td>Overview - rock</td>
<td></td>
<td>west</td>
<td></td>
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<tr>
<td>104-0195</td>
<td>16:34</td>
<td></td>
<td></td>
<td>north</td>
<td></td>
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<tr>
<td>104-0196</td>
<td>16:34</td>
<td>Overview</td>
<td></td>
<td>south</td>
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<tr>
<td>104-0197</td>
<td>16:35</td>
<td></td>
<td></td>
<td>east</td>
<td></td>
</tr>
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Field Supervisor Initials: JH  Date: 9/19/13
Sample Lead Initials: MW  Date: 9/19/13
<table>
<thead>
<tr>
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<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>104-0198</td>
<td>10:35</td>
<td>MS</td>
<td></td>
<td>Rocks in Grab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>API 1 Drop 1</td>
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<td>104-0199</td>
<td>16:52</td>
<td>MS</td>
<td></td>
<td>Rocks in Grab</td>
</tr>
<tr>
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<td>API 1 Drop 3</td>
</tr>
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<td>104-0200</td>
<td>17:23</td>
<td>MS</td>
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<td>Chain of Custody</td>
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<td>104-0201</td>
<td>17:25</td>
<td>MS</td>
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<td>Chain of Custody</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to RPS</td>
</tr>
</tbody>
</table>
Sample Location Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF-10
Date: 9/18/13
Vessel: TAHOMA
Sampling Crew: WETER/ANOTHER/SELER
Vessel Crew: TAUDELL/HIND/SCHREFF/HAAGEN
EPA Observer: WILKINING (CH)
C.R. Observer: WHITE (APS)
Arrival Time: 0935
Departure Time: 1030
River Stage: Water Surface Elev. (ft): 1,281.90
Water Surface Elevation Source: USBR
Weather Conditions Upon Arrival
Temp (°F): 57°
Wind (mph): <5
Clouds/Precipitation: CLEAR to partly cloudy

Site Information:
Boat Position: (Powered) (Anchored)
River Mile: 601
Water Surface: (Calm) (Small Waves) (Choppy)
Surface Vegetation Present: Yes No
Was Vegetation Removed: Yes No

Notable shore surface features:
(rock outcrops, streams, wetlands, oxbows, outfalls, roads, houses, campsites, construction, etc.)
Steep low cliffs, small bay

Sample Location Photo IDs:
(see Photo Log for descriptions)
Camera ID: 527506601
Photo ID: 103-0114 Time: 1002
Photo ID: 103-0115 Time: 1002
Photo ID: 103-0116 Time: 1002

General Notes:
- after 9 attempts no acceptable sediment
- no rejected material kept as it was mostly sand, gravel & cobbles
- will move to REF 106

C.R. - cultural resources
Field Supervisor Initials DHT Date: 9/18/13
Sample Lead Initials MW Date: 9/18/13
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF-10

Anchor Point (max 3) 0 2 3
Water Depth (feet): 68

Drop # 1 2 3 Cast Time 1000
Sampler Penetration (inches): 2

Angle (< 5' max) Yes No
Cultural Resources Observed? No Yes

Sample Location: [NAD_83_UTM_Zone_11_North]
EASTING: 356105 17
NORTHING: 5312524 64

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __ __%
Accepted Rejected
pH of Sediment in Sampler: __ __ Description: __ __

Sediment Characteristics

Type: 
% Silt (<1/16 mm) __ __
% Sand (1/16-2 mm) __ __
% Gravel __ __
% Cobbles 100
% Silica Glass __ __

Color: Munsell Color Chart #: __ __
Description: __ __

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches): __ __
Odor: None Hydrogen sulfide
Other: __ __

Amphipods: __ __
Tubes: __ __
Debris (twigs/leaves): __ __
Other: __ __

Macrophytes: __ __

Sample Collected Using
Van Veen X
Eckman
Ponar
Shovel

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Sediment (SE) Sample ID: ________ Time: ________ # Containers: ________ Volume: ________ %
Duplicate SE Sample ID: ________ Time: ________ # Containers: ________ Volume: ________ %
Split SE Samples (EPA/NPS/CCT): ________ Time: ________ # Containers: ________ Volume: ________ %
Pore Water (PW) Sample ID: ________ Time: ________ # Containers: ________ Volume: ________ %

Sample Lead Initials M W Date: 9/8/13 Field Supervisor Initials C H Date: 9/29/13
Sediment/Porewater Sampling Form
Upper Columbia River R1/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF-10

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1002
Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes

Sample Location: (NAD 83 UTM Zone 11 North)
EASTING: 357,051.2 NORTING: 5312524.49

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __%
Accepted Rejected

pH of Sediment in Sampler: __
Description: _

Sediment Characteristics

Type: % Silt ___ (<1/16 mm)
% Sand ___ (1/16 - 2 mm)
% Gravel ___
% Cobbles ___
% Silica Glass:

Color: Munsell Color Chart #:
Description:

Redox Boundary:
Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Amphipods:
Debris (twigs/leaves):
Tubes:
Other:

Macrophytes:

Sample Collected Using
Van Vaen X
Eckman
Eel Plate
Shovel

Sediment in Grab:
Homogenized Sample:

Other:

Photo Numbers (see Photo Log for descriptions)

Sediment (SE) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___
Duplicate SE Sample ID: ___ Time: ___ # Containers: ___ Volume: ___

Split SE Samples (EPA/NPS/CCT):

Pore Water (PW) Sample ID: ___ Time: ___ # Containers: ___ Volume: ___

Sample Lead Initials M/ Date 4/16/13
Field Supervisor Initials X Date 9/20/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
# Sediment/Porewater Sampling Form

## Upper Columbia River RI/FS

### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Anchor Point (max 3)</th>
<th>Drop #</th>
<th>Cast Time</th>
<th>Angle (&lt; 5° max)</th>
<th>Water Depth (feet):</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>REF-10</td>
<td>0</td>
<td>1 2 3</td>
<td>1004</td>
<td>Yes</td>
<td>5.91</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Location:

- **EASTING:** 356 109 64
- **NORTHING:** 531 252 41

### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**
7. Sample is: **Accepted**

### Porewater

Cumulative Percent of Porewater Syringe filled: **80%**

<table>
<thead>
<tr>
<th>pH of Sediment in Sampler:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sediment Characteristics

- **Type:** % Silty: (<1/16 mm)
- % Sandy: (1/16 - 2 mm)
- % Gravel
- % Cobble
- % Silica Glass

<table>
<thead>
<tr>
<th>Color Munsell Color Chart #:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amphipods:

- Debris (twigs/leaves):
- Sample Collected Using:
  - Van Veen
  - Eickman
  - Ponar
  - Shovel

### Photo Numbers 's

(Sediment in Grab: 105-0118, Time: 1007)

### Sediment (SE) Sample ID:

- Time: 
- # Containers: 
- Volume: %

### Duplicate SE Sample ID:

- Time: 
- # Containers: 
- Volume: %

### Split SE Samples (EPA/NPS/CCT):

- # Containers: 
- Volume: %

### Pore Water (PW) Sample ID:

- Time: 
- # Containers: 
- Volume: %

Sample ID Format:

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: AM
Field Supervisor Initials: KH

Date: 9/16/13  9/28/13

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF-10

Anchor Point (max 3) 1 2 3
Water Depth (feet): 180

Drop #: 1 2 3 Cast Time: 0008
Sampler Penetration (inches): 3 1

Angle (< 5° max) Yes No
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 357103.50
NORTHING: 5312529.02

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: %

pH of Sediment in Sampler: Accepted Rejected

Sediment Characteristics
Type: % Silt (%<1/16 mm)
% Sand (%1/16 - 2 mm)
% Gravel
% Cobbles
% Silica Glass:

Color: Munsell Color Chart #:
Description:

Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):

Odor: None Hydrogen sulfide
Other:

Amphipods:
Debris (twigs/leaves):
Sample Collected Using
Van Veen
Eckman
Ponar
Shovel

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Photo Numbers 's
(see Photo Log for descriptions)

Sediment (SE) Sample ID:
Time: 
# Containers: 
Volume: %

Duplicate SE Sample ID:
Time: 
# Containers: 
Volume: %

Split SE Samples (EPA/NPS/CCT):
Time: 
# Containers: 
Volume: %

Pore Water (PW) Sample ID:
Time: 
# Containers: 
Volume: %

Sample Lead Initials MU Date: 9/16/13
Field Supervisor Initials OH Date: 9/20/13

URS
### Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of shuffling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: Accepted

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
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<tbody>
<tr>
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<td>Description:</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Boundary:</td>
<td>Present? Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment Surface (inches):</td>
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<tr>
<td>Odor:</td>
<td>None</td>
<td>Hydrogen sulfide</td>
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### Sample Collected Using

<table>
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<th>Sediment in Grab</th>
<th>Other:</th>
<th>Sediment in Grab:</th>
<th>Time:</th>
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<tbody>
<tr>
<td>Van Veen X</td>
<td>Sediment in Grab:</td>
<td>Other:</td>
<td>Time:</td>
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<tr>
<td>Eckman</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ponar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td></td>
<td></td>
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### Photo Numbers

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<th>(see Photo Log for descriptions)</th>
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<td>109-0920</td>
<td>Time: 1017</td>
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### Sediment (SE) Sample ID

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<th>Volume:</th>
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### Duplicate SE Sample ID

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<th># Containers:</th>
<th>Volume:</th>
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</table>

### Split SE Samples (EPA/NPS/CCT)

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<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
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</table>

### Pore Water (PW) Sample ID

<table>
<thead>
<tr>
<th>Pore Water (PW) Sample ID</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
</table>

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bios assay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:** M/L  
**Date:** 9/18/13  
**Field Supervisor Initials:** L/H  
**Date:** 9/20/13
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number: 36310189</th>
<th>Station Identifier: REF-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>Water Depth (feet): 27.4</td>
</tr>
<tr>
<td>Drop # 1 2 3 Cast Time (10:21)</td>
<td>Sampler Penetration (inches): 0</td>
</tr>
<tr>
<td>Angle (&lt; 5°max) Yes No</td>
<td>Cultural Resources Observed? No Yes</td>
</tr>
<tr>
<td>Sample Location: EASTING: 356040.71 NORTING: 5312482.55</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler? YES NO</td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present? YES NO</td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid? YES NO</td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO</td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved? YES NO</td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, lifting upon retrieval)? YES NO</td>
<td></td>
</tr>
<tr>
<td>7. Sample is: Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>Porewater Cumulative Percent of Porewater Syringe tilted: Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>pH of Sediment in Sampler: Description:</td>
<td></td>
</tr>
<tr>
<td>Sediment Characteristics</td>
<td></td>
</tr>
<tr>
<td>Type: % Silt (&lt;1/16 mm) % Sand (1/16 - 2 mm) % Gravel % Cobbles % Silica Glass Color: Munsell Color Chart #: Description:</td>
<td></td>
</tr>
<tr>
<td>Redox Boundary: Present? Yes No</td>
<td></td>
</tr>
<tr>
<td>Odor: None Hydrogen sulfide Other:</td>
<td></td>
</tr>
<tr>
<td>Amphipods: Tubes: Macrophytes:</td>
<td></td>
</tr>
<tr>
<td>Debris (twigs/leaves): Other:</td>
<td></td>
</tr>
<tr>
<td>Sample Collected Using: Van Veen X Eckman Ponar Shovel</td>
<td></td>
</tr>
<tr>
<td>Sediment in Grab: Photo Numbers 's (see Photo Log for descriptions)</td>
<td></td>
</tr>
<tr>
<td>Sediment (SE) Sample ID: Time: # Containers: Volume: %</td>
<td></td>
</tr>
<tr>
<td>Duplicate SE Sample ID: Time: # Containers: Volume: %</td>
<td></td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/GCT): Time: # Containers: Volume: %</td>
<td></td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID: Time: # Containers: Volume: %</td>
<td></td>
</tr>
</tbody>
</table>

Sample Lead Initials M Date: 9/8/13 Field Supervisor Initials L/H Date: 9/18/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River R/WFS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** REF-10

**Anchor Point (max 3):**
- 1  
- 2  
- 3

**Water Depth (feet):** 24.8

**Drop #**
- 1  
- 2  
- 3  
**Cast Time:** 10:25

**Sampler Penetration (inches):** 3"

**Angle (< 5° max):** Yes

**Cultural Resources Observed?** Yes

**Sample Location:**
- **EASTING:** 356051.02
- **NORTHING:** 5312479.42

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

**Porewater**

- **Cumulative Percent of Porewater Syringe filled:** __% Accepted Rejected
- **pH of Sediment in Sampler:** __ su Description:

**Sediment Characteristics**

- **Type:**
  - % Silt: ________ (<1/16 mm)
  - % Sand: ________ (1/16 - 2 mm)
  - % Gravel: ________
  - % Pebbles: ________
  - % Silica Glass: ________

- **Color:**
  - Munsell Color Chart #: 
  - Description:

- **Redox Boundary:**
  - Present? Yes No
  - If present -- Depth Below Sediment Surface (inches): 

- **Odor:**
  - None
  - Hydrogen sulfide
  - Other:

**Other:**

- Amphipods: 
- Debris (twigs/leaves): 
- Macrophytes: 

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Photo Numbers 's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratified sediment:</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Sheen Present:</td>
<td></td>
</tr>
<tr>
<td>Van Veen</td>
<td>Sediment in Grab:</td>
</tr>
<tr>
<td>Eckman</td>
<td>Time:</td>
</tr>
<tr>
<td>Ponor</td>
<td>Homogenized Sample:</td>
</tr>
<tr>
<td>Shovel</td>
<td>Time:</td>
</tr>
<tr>
<td>Other:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sediment (SE) Sample ID:</th>
<th>Time:</th>
<th># Containers:</th>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Split SE Samples (EPA/NPS/CCT):</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td># Containers:</td>
<td>Volume:</td>
</tr>
</tbody>
</table>

---

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

Sample Lead Initials: MW  
Date: 9/18/13  
Field Supervisor Initials: OA  
Date: 9/18/13

---

**URS**
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** REF-10

**Anchor Point (max 3) 1 2 Yes**  
**Water Depth (feet):** 24.6

**Drop # 1 2 3 Cast Time:** 029  
**Sampler Penetration (inches):** 3

**Angle (< 5°max) Yes No**  
**Cultural Resources Observed? No Yes**

**Sample Location: EASTING: 356080.54 (NAD_83_UTM_Zone_11_North)  
NORTHING: 5312479.45**

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES NO**
2. Overlying water present? **YES NO**
3. Overlying water excessively turbid? **YES NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES NO**
7. Sample is: **Accepted Rejected**

---

**Porewater**

Cumulative Percent of Porewater Syringes filled: ___%  
**Accepted Rejected**

pH of Sediment in Sampler: ______ su  
Description: __________

---

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Munsell Color Chart #: Description:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Redox Boundary: Present? Yes No  
If present -- Depth Below Sediment Surface (inches): __

Odor: None Hydrogen sulfide  
Other: __________

---

**Amphipods:**  
Debris (twigs/leaves):  
Other: __________

**Sample Collected Using**

<table>
<thead>
<tr>
<th>Sample Collected Using</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Veen X</td>
<td></td>
</tr>
</tbody>
</table>

---

**Sediment (SE) Sample ID:___________ Time:______ # Containers:_________ Volume:_____%**

**Duplicate SE Sample ID:___________ Time:______ # Containers:_________ Volume:_____%**

**Split SE Samples (EPA/NPS/CCT):___________ Time:______ # Containers:_________ Volume:_____%**

**Pore Water (PW) Sample ID:___________ Time:______ # Containers:_________ Volume:_____%**

---

Sample Lead Initials ___________ Date: 9/18/13  
Field Supervisor Initials DH Date: 9/30/13

---

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
Project Number: 36310189
Station Identifier: REF-10

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time
Angle (< 5°max) Yes No
Sampler Penetration (inches) 3.0
Cultural Resources Observed? No Yes

Sample Location: (NAD 83_UTM_Zone_11 North)
EASTING: 356066.21 NORTHING: 5312479.80

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: ___ % Accepted Rejected
pH of Sediment in Sampler: ______ su Description:

Sediment Characteristics
Type: % Silt (%<1/16 mm) Munsell Color Chart #: Description:
% Sand (%1/16 - 2 mm)
% Gravel
% Cobble
% Silica Glass

Amphipods: Tubes: Macrophytes:
Debris(twigs/leaves): Other: Hydrogen sulfide

Stratified sediment: Yes No
Sheen Present: Yes No

Sample Collected Using
Van Veen X
Ekman
Ponar
Shovel

Sediment in Grab:
Homogenized Sample:
Other:

Photo Numbers:
(see Photo Log for descriptions)

Sediment (SE) Sample ID: ___ # Containers: _____ Volume: ___%
Duplicate SE Sample ID: ___ # Containers: _____ Volume: ___%
Split SE Samples (EPA/NPS/CCT): ___ # Containers: _____ Volume: ___%
Pore Water (PW) Sample ID: ___ # Containers: _____ Volume: ___%

Sample Lead Initials: ___ Date: ___ Field Supervisor Initials: ___ Date: ___

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>103-0112</td>
<td>09:57</td>
<td>Michelle Stegner (ms)</td>
<td>-</td>
<td>Photoboard REF-10</td>
</tr>
<tr>
<td>103-0116</td>
<td>10:03</td>
<td>mh</td>
<td>-</td>
<td>Rock in Grab #2</td>
</tr>
<tr>
<td>103-0113</td>
<td>10:02</td>
<td>mh</td>
<td>-</td>
<td>Rock in Grab #1</td>
</tr>
<tr>
<td>103-0117</td>
<td>10:04</td>
<td>mh</td>
<td>-</td>
<td>Rock in Grab #2</td>
</tr>
<tr>
<td>103-0114</td>
<td>10:02</td>
<td>mh</td>
<td>East</td>
<td>Overview</td>
</tr>
<tr>
<td>103-0118</td>
<td>10:07</td>
<td>mh</td>
<td>-</td>
<td>Rock in Grab #3</td>
</tr>
<tr>
<td>103-0115</td>
<td>10:02</td>
<td>mh</td>
<td>West</td>
<td>Overview</td>
</tr>
<tr>
<td>103-0119</td>
<td>10:08</td>
<td>mh</td>
<td>-</td>
<td>Rock in Grab #4</td>
</tr>
</tbody>
</table>
Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project: 36310189
Station Identifier: REF-10
Vessel: Tahoma mv/EP/ms

Cambridge Serial #: 527506601

Date: 9/18/2013
Field Supervisor Initials:  
Sample Lead Initials:  
Date: 9/20/13

Photo ID: 103-0120  Time: 10:17
Photographer: MS
Photo Orientation: 
Description: Rock in Grab #5

Photo ID: 103-0124  Time: 10:35
Photographer: MS/EP
Photo Orientation: 
Description: Rocks in Grab #9

Photo ID: 103-0121  Time: 10:23
Photographer: MS
Photo Orientation: 
Description: Rock in Grab #6

Photo ID: 103-0122  Time: 10:36
Photographer: MS
Photo Orientation: 
Description: Rock in Grab #7

Photo ID: 103-0123  Time: 10:31
Photographer: MS
Photo Orientation: 
Description: Rock in Grab #8
Sample Location Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number:</td>
<td>36310189</td>
</tr>
<tr>
<td>Date:</td>
<td>9/18/13</td>
</tr>
<tr>
<td>Sampling Crew:</td>
<td>WETTER/PANTHER/STEWART</td>
</tr>
<tr>
<td>EPA Observer:</td>
<td>WILKENIN</td>
</tr>
<tr>
<td>Arrival Time:</td>
<td>1103</td>
</tr>
<tr>
<td>River Stage:</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elev. (ft):</td>
<td></td>
</tr>
<tr>
<td>Water Surface Elevation Source:</td>
<td></td>
</tr>
<tr>
<td>Site Information:</td>
<td></td>
</tr>
<tr>
<td>Boat Position:</td>
<td>(Powered) (Anchored)</td>
</tr>
<tr>
<td>River Mile:</td>
<td>601</td>
</tr>
<tr>
<td>Water Surface:</td>
<td>(Calm) (Small Waves) (Cresty)</td>
</tr>
<tr>
<td>Surface Vegetation Present:</td>
<td>Yes No</td>
</tr>
<tr>
<td>Was Vegetation Removed:</td>
<td>Yes No</td>
</tr>
<tr>
<td>Notable shore surface features:</td>
<td>rocky shore</td>
</tr>
<tr>
<td>Sample Location Photo IDs:</td>
<td>(see Photo Log for descriptions)</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>103-0126, Time: 1109</td>
</tr>
<tr>
<td>Photo ID:</td>
<td>103-0127, Time: 1109</td>
</tr>
<tr>
<td>General Notes:</td>
<td>- attempted first drop on NE edge of circle</td>
</tr>
<tr>
<td></td>
<td>- continued on NE edge for 12 addition</td>
</tr>
<tr>
<td></td>
<td>- moved to west edge to get final grab</td>
</tr>
<tr>
<td></td>
<td>- NPS split given to NPS at 1528</td>
</tr>
<tr>
<td>C.R. - cultural resources</td>
<td></td>
</tr>
<tr>
<td>Field Supervisor Initials</td>
<td>304H  Date: 9/18/13</td>
</tr>
<tr>
<td>Sample Lead Initials</td>
<td>AN  Date: 9/18/13</td>
</tr>
</tbody>
</table>
**Sediment-Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189  
**Station Identifier:** REF-106

**Anchor Point (max 3):**  
**Water Depth (feet):** 28.9'

**Drop #:**  
**Cast Time:** 1115

**Angle (< 5° max):** Yes  
**Cultural Resources Observed?** No

**Sample Location:**  
**EASTING:** 356566.39  
**NORTHING:** 5311254.65

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   **YES**  
2. Overlying water present?  
   **YES**  
3. Overlying water excessively turbid?  
   **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   **YES**  
5. Desired penetration depth (4 to 6 inches) achieved?  
   **YES**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   **YES**  
7. Sample is:  
   Accepted  
   **Rejeced**

---

**Porewater**

- Cumulative Percent of Porewater Syringe filled: ____ %  
- Accepted  
- Rejected

- pH of Sediment in Sampler:  
- Description:

---

**Sediment Characteristics**

- **Type:**  
  - % Silt
  - % Sand
  - % Gravel
  - % Cobble
  - % Silica Glass
  
- **Color:** Munsell Color Chart #:  
  Description:

---

**Amphipods:**  
**Tubes:**  
**Debris (twigs/leaves):**  
**Macrophytes:**

---

**Sample Collected Using**

- **Van Veen**  
- **Eckman**  
- **Ponar**  
- **Shovel**

- **Sediment in Grab:**  
- **Homogenized Sample:**

- **Sediment (SE) Sample ID:**  
- **Duplicate SE Sample ID:**  
- **Split SE Samples (EPA/NPS/CTT):**

---

**Pore Water (PW) Sample ID:**  
**Sample Lead Initials:** n

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Log Number:**  
**Date:** 9/8/13  
**Field Supervisor Initials:**

---

**URS**
## Sediment/Porewater Sampling Form
### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF 106</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>26.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>1122</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sample Location:</td>
<td>EASTING: 356564.89</td>
<td>NORTHING: 5311262.62</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **YES**  **NO**
2. Overlying water present? **YES**  **NO**
3. Overlying water excessively turbid? **YES**  **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  **NO**
7. Sample is: **Accepted**  **Rejected**

### Porewater
- Cumulative Percent of Porewater Syringe filled: ___% **Accepted**  **Rejected**
- pH of Sediment in Sampler: ___  su **Accepted**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
<th>Color</th>
<th>Munsell Color Chart #:</th>
<th>Description</th>
</tr>
</thead>
</table>

- Redox Boundary: **Present**  **Not present**
  - Depth Below Sediment Surface (inches): ___
- Odor: **None**  **Hydrogen sulfide**
  - Other: ___

### Amphipods: **No**
- Tubes: **No**
- Debris (twigs/leaves): **No**
- Macrophytes: **No**

### Sample Collected Using
- Stratified sediment: **Yes**  **No**
- Sheen Present: **Yes**  **No**
- Van Veen | X |
- Eckman |
- Ponor |
- Shovel |
- Sediment in Grab: | [Image] |
- Homogenized Sample: | [Image] |
- Other: | [Image] |
- Time: | [Image] |

### Photo Numbers ‘s
- Sediment (SE) Sample ID: | | Time: | | # Containers: | | Volume: | |
- Duplicate SE Sample ID: | | Time: | | # Containers: | | Volume: | |
- Split SE Samples (EPA/NPS/CCT): | | Time: | | # Containers: | | Volume: | |
- Pore Water (PW) Sample ID: | | Time: | | # Containers: | | Volume: | |

### Sample Lead Initials: MV  Date: 9/15/13  Field Supervisor Initials: DH  Date: 9/20/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
### Sediment/Porewater Sampling Form

**Upper Columbia River RI/FS**  
**2013 Phase 2 Sediment Study**

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>1 2 3</td>
<td>Water Depth (feet):</td>
<td>28.4</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time</td>
<td>11:30</td>
</tr>
<tr>
<td>Angle (&lt; 5° max)</td>
<td>Yes No</td>
<td>Cultural Resources Observed?</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sample Location:</td>
<td></td>
<td>(NAD_83_UTM_Zone_11_North)</td>
<td></td>
</tr>
<tr>
<td>Sample Acceptance Criteria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sampler overfilled or sediment pressed against top of sampler?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Overlying water present?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Overlying water excessively turbid?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Desired penetration depth (4 to 6 inches) achieved?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?</td>
<td>YES NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sample is:</td>
<td>Accepted Rejected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Porewater

- Cumulative Percent of Porewater Syringe filled: 40% 65mls
- pH of Sediment in Sampler: 7.39 su

#### Sediment Characteristics

- Color: Munsell Color Chart #: 
- Description: 
- Type: % Silt (1/16 mm) 50  
- % Sand (1/8 - 2 mm) 25  
- % Gravel 0  
- % Cobble 0  
- % Silica Glass:  
- Redox Boundary: Present? Yes No  
- If present - Depth Below Sediment Surface (inches): 0.15  
- Odor: None Hydrogen sulfide

#### Amphipods:
- Debris(twigs/leaves): NO  
- Tubes: NO  
- Macrophytes: NO

#### Sample Collected Using

- Van Veen X  
- Eckman  
- Ponar  
- Shovel

#### Sediment in Grab:
- Time: 11:32

#### Homogenized Sample:
- Time:  

#### Other:
- Time:  

#### Sediment (SE) Sample ID: SE-R4-17 Time: 15:09
- # Containers: 7/4/3 Volume: 4.8/3  
- Split SE Samples (EPA/NPS/CCT): 
  - # Containers: 1 Volume:  
- Pore Water (PW) Sample ID: PW-REF6 Time: 11:50
  - # Containers: 2 Volume: 60mls

Sample Lead Initials: MV  
Date: 9/18/13  
Field Supervisor Initials: K4  
Date: 9/20/13  

**Sample ID Format:**  
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
PW-1-B2: Pore Water at Station 1-B2
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>363101B9</th>
<th>Station Identifier:</th>
<th>REF-106</th>
</tr>
</thead>
</table>

**Anchor Point (max 3)**
- 1
- 2
- 3

**Drop #**
- 1
- 2
- 3
- Cast Time: 1207

**Angle (< 5° max)**
- Yes
- No

**Sampler Penetration (inches):** 5

**Cultural Resources Observed?**
- No
- Yes

**Sample Location:**
- EASTING: 356564.58
- NORTHING: 5311206.27

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

**Porewater:**
- Cumulative Percent of Porewater Syringe filled: __%
- pH of Sediment in Sampler: __
- Description:

**Sediment Characteristics:**

- Type: % Silt
- Color: Munsell Color Chart #: Description:
- % Sand
- Redox Boundary: Present? Yes No
- % Gravel
- If present - Depth Below Sediment Surface (inches):
- % Cobbles
- Odor: None Hydrogen sulfide
- % Silica Glass:

**Amphipods:**
- Debris (twigs/leaves):
- Other:

**Sample Collected Using:**
- Stratified sediment: Yes No
- Sheen Present: Yes No
- Van Veen
- Eckman
- Ponor
- Shovel

**Homogenized Sample:**
- Sediment in Grab:
- Time:

**Photo Numbers of:**
- Other:

**Sediment (SE) Sample ID:**
- Time:
- # Containers: __
- Volume: __%

**Duplicate SE Sample ID:**
- Time:
- # Containers: __
- Volume: __%

**Split SE Samples (EPA/NPS/CCT):**
- Time:
- # Containers: __
- Volume: __%

**Pore Water (PW) Sample ID:**
- Time:
- # Containers: __
- Volume: __%

Sample Lead Initials: MU

Date: 9/16/14

Field Supervisor Initials: LAH

Date: 9/20/13

---

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**

**Upper Columbia River RI/FS**

**2013 Phase 2 Sediment Study**

---

**Project Number:** 36310189

**Station Identifier:** REF-10b

**Anchor Point (max 3):** 1 2 3

**Water Depth (feet):** 26.8

**Drop #:** 1 2 3

**Cast Time:** 1212

**Sampler Penetration (inches):** 9

**Angle (<5°max):** Yes No

**Cultural Resources Observed?:** Yes

---

**Sample Location:** (NAD_83_UTM_Zone_11_North)

**EASTING:** 356575.50

**NORTHING:** 5311256.33

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES** **NO**

2. Overlying water present? **YES** **NO**

3. Overlying water excessively turbid? **YES** **NO**

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **Slight winnowing**

5. Desired penetration depth (4 to 6 inches) achieved? **YES** **NO**

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES** **NO**

7. Sample is: **Accepted** **Rejected**

---

**Porewater**

**Cumulative Percent of Porewater Syringe filled:** 24%

**pH of Sediment in Sampler:** 7.26

**Accepted** **Rejected**

---

**Sediment Characteristics**

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>95</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Color:** Dark Gray

**Munsell Color Chart #:** 5Y 4/1

---

**Amphipods:**

**Excess:**

**Debris (twigs/leaves):**

**Tubes:**

**Other:**

**Macrophytes:**

**Sediment (SE) Sample ID:**

**Time:**

**# Containers:** 7

**Volume:** 4.100 / 3.80%

**Duplicate SE Sample ID:**

**Time:**

**# Containers:** 7

**Volume:** %

**Split SE Samples (EPA/NPS/CCT):**

**Time:**

**# Containers:** 7

**Volume:** %

**Pore Water (PW) Sample ID:**

**Time:**

**# Containers:** 1

**Volume:** 2.4 ml / %

---

**Sample Lead Initials:** MW

**Date:** 9/10/13

**Field Supervisor Initials:** C4

**Date:** 7/30/13

---

**Sample ID Format:**

SE-1-C2: Sediment at Station 1-C2 (Chemistry only)

SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

PW-1-B2: Pore Water at Station 1-B2

---

**URS**
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
</tr>
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<tbody>
<tr>
<td>36310189</td>
<td>REF-106</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>Water Depth (feet):</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>26.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>Cast Time</th>
<th>Water Depth (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>1304</td>
<td>26.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5° max)</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Location:</th>
<th>[NAD83_UTM_Zone_11_North]</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASTING:</td>
<td>3560592.83</td>
</tr>
<tr>
<td>NORTING:</td>
<td>5311247.02</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  **NO**
2. Overlying water present? **YES**  **NO**
3. Overlying water excessively turbid? **YES**  **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  **NO**
7. Sample is: **Accepted**  **Rejected**

Porewater

<table>
<thead>
<tr>
<th>Cumulative Percent of Porewater Syringe filled:</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

pH of Sediment in Sampler: 6.89

Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Silt</td>
<td>3 75E-6 (&lt;1/16 mm)</td>
</tr>
<tr>
<td>% Sand</td>
<td>97 (1/16 - 2 mm)</td>
</tr>
<tr>
<td>% Gravel</td>
<td></td>
</tr>
<tr>
<td>% Cobblels</td>
<td></td>
</tr>
<tr>
<td>% Silica Glass</td>
<td>-0-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amphipods:</th>
<th>Debris (twigs/leaves):</th>
<th>Sample Collected Using</th>
<th>Macrophytes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphipods:</td>
<td>Debris (twigs/leaves):</td>
<td>Sample Collected Using</td>
<td>Macrophytes:</td>
</tr>
<tr>
<td>Stratified sediment: Yes</td>
<td>No</td>
<td>Van Veen</td>
<td>Y</td>
</tr>
<tr>
<td>Sheen Present: Yes</td>
<td>No</td>
<td>Eckman</td>
<td>Other</td>
</tr>
<tr>
<td>Sediment in Grab: Time:</td>
<td>163:0141</td>
<td>Volume:</td>
<td>4 m³/3.38 %</td>
</tr>
<tr>
<td>Homogenized Sample: Time:</td>
<td>1308</td>
<td>Volume:</td>
<td>100 %</td>
</tr>
<tr>
<td>Sediment (SE) Sample ID:</td>
<td>SE-5F-106</td>
<td>Time:</td>
<td>1507</td>
</tr>
<tr>
<td>Duplicate SE Sample ID:</td>
<td>106</td>
<td>Time:</td>
<td>1507</td>
</tr>
<tr>
<td>Split SE Samples (EP/NS/CCT):</td>
<td>106</td>
<td>Time:</td>
<td>1507</td>
</tr>
<tr>
<td>Pore Water (PW) Sample ID:</td>
<td>Time:</td>
<td>1507</td>
<td></td>
</tr>
</tbody>
</table>

Sample Lead Initials: MV  Date: 9/18/13
Field Supervisor Initials: 94  Date: 9/20/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

Project Manager: URS
**Sediment/Porewater Sampling Form**  
*Upper Columbia River RI/FS*  
*2013 Phase 2 Sediment Study*

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Station Identifier:</th>
<th>Water Depth (feet):</th>
<th>Sampler Penetration (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>REF-106</td>
<td>28.4</td>
<td>6.4</td>
</tr>
</tbody>
</table>

**Anchor Point (max 3)**:  
1. 2. 3  

**Drop # 1 2 3 Cast Time**: 1334

**Angle (< 5° max)**:  
- Yes  
- No

**Sample Location**:  
EASTING: 38577.41 (NAD_83_UTM_Zone_11_North)  
NORTHING: 5311257.07

---

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler? **YES**  
2. Overlying water present? **YES**  
3. Overlying water excessively turbid? **YES**  
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**  
5. Desired penetration depth (4 to 6 inches) achieved? **YES**  
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **YES**  
7. Sample is: **Accepted**  

---

**Porewater**  
Cumulative Percent of Porewater Systeque filled:  
- Accepted  
- Rejected

**pH of Sediment in Sampler:**

**Sediment Characteristics**

- **Type:**
  - % Silt: (1/16 mm)  
  - % Sand: (1/16 - 2 mm)  
  - % Gravel  
  - % Cobble  
  - % Silica Glass

- **Color:** Munsell Color Chart #:  
  - Description:

- **Redox Boundary:**
  - Present? Yes No

- **Odor:**
  - None  
  - Hydrogen sulfide

- **Amphipods:**
  - Tubos:
  - Other:

- **Debris (twigs/leaves):**

- **Sample Collected Using:**
  - Van Veen  
  - Eckman  
  - Ponar  
  - Shovel

- **Photo Numbers:**
  - (see Photo Log for descriptions)  
  - Time: 1332

- **Sediment (SE) Sample ID:**  
- Time:  
- # Containers:  
- Volume:

- **Duplicate SE Sample ID:**  
- Time:  
- # Containers:  
- Volume:

- **Split SE Samples (EPA/NPS/CCT):**  
- Time:  
- # Containers:  
- Volume:

- **Pore Water (PW) Sample ID:**  
- Time:  
- # Containers:  
- Volume:

---

**Sample Lead Initials:** MV  
Date: 9/19/13  
Field Supervisor Initials: AH  
Date: 9/20/13

---

**Sample ID Format:**

- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2
**Sediment/Porewater Sampling Form**  
*Upper Columbia River Ri/FS*  
*2013 Phase 2 Sediment Study*  

**Project Number:** 36310189  
**Station Identifier:** REF-7106

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>32.5'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop #</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Cast Time: 13:34</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Resources Observed?</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Location:**  
EASTING: 356570.62  
NORTHING: 5311259.53  

**Sample Acceptance Criteria:**

1. Sampler overfilled or sediment pressed against top of sampler?  
   - Accepted  
   - Rejected  

2. Overlying water present?  
   - Yes  
   - No  

3. Overlying water excessively turbid?  
   - Yes  
   - No  

4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  
   - Yes  
   - No  

5. Desired penetration depth (4 to 6 inches) achieved?  
   - Yes  
   - No  

6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  
   - Yes  
   - No  

7. Sample is:  
   - Accepted  
   - Rejected

**Porewater**

- Cumulative Percent of Porewater Syringes filled: 
- pH of Sediment in Sampler:  
- Description: 

**Sediment Characteristics**

- Type: % Silt (%1/16 mm)  
- Color: Munsell Color Chart #:  
- Description: 

- % Sand (%1/16 - 2 mm)  
- Redox Boundary: Present? Yes No  
- If present -- Depth Below Sediment Surface (inches): 

- % Gravel  
- % Cobbles  
- % Silica Glass: 
- Odor: None Hydrogen sulfide Other: 

**Amphipods:**  
- Tubes: 
- Other: 

**Macrophytes:**

- Debris (twigs/leaves): 
- Sample Collected Using: Van Veen  
- Eckman  
- Ponor  
- Shovel  
- Sediment in Grab: 
- Homogenized Sample: 

**Photo Numbers:**

- See Photo Log for descriptions  
- Time: 13:39

- Sediment (SE) Sample ID: 
- Time:  
- # Containers:  
- Volume: 

- Duplicate SE Sample ID: 
- Time:  
- # Containers:  
- Volume: 

- Split SE Samples (EPA/NPS/CCT): 
- Time:  
- # Containers:  
- Volume: 

- Pore Water (PW) Sample ID: 
- Time:  
- # Containers:  
- Volume: 

**Sample Lead Initials:** MW  
**Date:** 01/16/13  
**Field Supervisor Initials:** NH  
**Date:** 01/06/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)  
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)  
- PW-1-B2: Pore Water at Station 1-B2

**URS**
Sediment/Porewater Sampling Form
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project Number: 36310189
Station Identifier: REF-106

Anchor Point (max 3) 1 2 3
Drop # 1 2 3 Cast Time 1343
Angle (< 5°) Yes No
Cultural Resources Observed? No Yes

Sample Location:
EASTING: 356569.61 (NAD 83 UTM Zone 11 North)
NORTHING: 5311259.41

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringes filled: ___ % Accepted Rejected
pH of Sediment in Sampler: su Description:

Sediment Characteristics
Type: % Silt (%<1/16 mm) Color: Munsell Color Chart #:
% Sand (%1/16 - 2 mm) Description:
% Gravel % Cobble
% Silica Glass

Amphipods: Tubes: Other:
Debris(twigs/leaves): Macrophytes:

Sample Collected Using
Sediment in Grab: 103016 Time: 1346
Van Veen
Sediment in Grab: 103016 Time: 1346
Eckman
Homogenized Sample: Other:
Ponar
Shovel

Sediment (SE) Sample ID: Time: # Containers: Volume:
Duplicate SE Sample ID: Time: # Containers: Volume:
Split SE Samples (EPA/NPS/CCT): Time: # Containers: Volume:
Pore Water (PW) Sample ID: Time: # Containers: Volume:

Sample Lead Initials: Date: 9/18/13 Field Supervisor Initials: Date: 11/20/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

Project Number: 36310189  
Station Identifier: REF-106

Anchor Point (max 3)  1  2  3  Water Depth (feet): 29.1

Drop #  1  2  3  Cast Time 1349  Sampler Penetration (inches): 2

Angle (< 5' max) Yes  No  Cultural Resources Observed? No  Yes

Sample Location: 
EASTING: 356566.12  NORTING: 531126.28

Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES NO
2. Overlying water present? YES NO
3. Overlying water excessively turbid? YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES NO
5. Desired penetration depth (4 to 6 inches) achieved? YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES NO
7. Sample is: Accepted Rejected

Porewater
Cumulative Percent of Porewater Syringe filled: __%  Accepted Rejected
pH of Sediment in Sampler: Description:

Sediment Characteristics
Type: % Silt (<1/16 mm) Color: Munsell Color Chart #:
% Sand (1/16 - 2 mm) Description:
% Gravel % Cobbles  
% Silica Glass:  
Redox Boundary: Present? Yes No
If present -- Depth Below Sediment Surface (inches):
Odor: None Hydrogen sulfide Other:

Amphipods:
Debris(twigs/leaves):

Sample Collected Using
Van Veen X  Eckman  1  2  Time: 1352
Ponar  Homogenized Sample:  153.0/147  Time: 1352
Shovel  Other: Time:

Sediment (SE) Sample ID: Time:  # Containers:  Volume: %
Duplicate SE Sample ID: Time:  # Containers:  Volume: %
Split SE Samples (EPA/NPS/CCT): Time:  # Containers:  Volume: %
Pore Water (PW) Sample ID: Time:  # Containers:  Volume: %

Sample Lead Initials: MU  Date: 9/4/13  Field Supervisor Initials: 04  Date: 9/20/13

Sample ID Format:
SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
PW-1-B2: Pore Water at Station 1-B2

URS
### Sediment/Porewater Sampling Form
**Upper Columbia River RI/FS**
**2013 Phase 2 Sediment Study**

**Project Number:** 36310189  
**Station Identifier:** REF 106

**Anchor Point (max 3)**  
1 2 3 4

**Drop #** 1 2 3  
**Cast Time:** 13:59

**Water Depth (feet):** 36.0

**Angle (< 5°max):** Yes  
**No Cultural Resources Observed?** No  
**Yes**

**Sample Location:**
**EASTING:** 356564.57  
**NORTHING:** 5311252.26

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? YES  NO
2. Overlying water present? YES  NO
3. Overlying water excessively turbid? YES  NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? YES  NO
5. Desired penetration depth (4 to 6 inches) achieved? YES  NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? YES  NO
7. Sample is: Accepted  Rejected

### Porewater
**Cumulative Percent of Porewater Syringe filled:** _______%  
**Accepted**  
**Rejected**  

**pH of Sediment in Sampler:** _______  
**Description:**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt (&lt;1/16 mm)</th>
<th>% Sand (1/16 - 2 mm)</th>
<th>% Gravel</th>
<th>% Cobble</th>
<th>% Silica Glass</th>
</tr>
</thead>
</table>

**Color:** Munsell Color Chart #:  
**Description:**

**Redox Boundary:**
- Present? Yes No
- If present - Depth Below Sediment Surface (inches):

**Odor:**
- None
- Hydrogen sulfide
- Other:

### Amphipods:
- Tubercules:
- Other:

### Debris (twigs/leaves):
- Macrophytes:

### Stratified sediment:
- Yes No

### Sample Collected Using
- Van Veen
- Eckman
- Pora
- Shovel

### Sediment in Grab:
- Homogenized Sample:

### Photo Numbers’ (see Photo Log for descriptions)
- Time: 1401

### Sediment (SE) Sample ID:
- Time:  
- # Containers:  
- Volume: %

### Duplicate SE Sample ID:
- Time:  
- # Containers:  
- Volume: %

### Split SE Samples (EPA/NPS/CCT):
- Time:  
- # Containers:  
- Volume: %

### Pore Water (PW) Sample ID:
- Time:  
- # Containers:  
- Volume: %

### Sample Lead Initials: MW  
**Date:** 9/18/13

### Field Supervisor Initials: CN  
**Date:** 9/20/13

**Sample ID Format:**
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**URS**
# Sediment/Porewater Sampling Form
## Upper Columbia River RI/FS
### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF 10b</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Anchor Point (max 3)</th>
<th>1 2 3</th>
<th>Water Depth (feet):</th>
<th>16.5'</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Drop #</th>
<th>1 2 3 Cast Time</th>
<th>Sampler Penetration (inches):</th>
<th>3.5</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Angle (&lt; 5' max)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources Observed?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### Sample Location:
- **EASTING:** 356547.38  (NAD_83_UTM_Zone_11_North)
- **NORTHING:** 5311268.42

### Sample Acceptance Criteria:
1. Sampler overfilled or sediment pressed against top of sampler? **NO**
2. Overlying water present? **NO**
3. Overlying water excessively turbid? **NO**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **NO**
5. Desired penetration depth (4 to 6 inches) achieved? **NO**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater
- Cumulative Percent of Porewater Syringe filled: **Accepted**
- **Rejected**

### pH of Sediment in Sampler:
- **Accepted**
- **Rejected**

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>% Silt</th>
<th>% Sand</th>
<th>% Gravel</th>
<th>% Cobbles</th>
<th>% Silica Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;1/16 mm</td>
<td>1/16 - 2 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Color:
- Munsell Color Chart #:
- **Description:**

### Redox Boundary:
- Present? **Yes**
- **No**
- If present -- Depth Below Sediment Surface (inches):

### Odor:
- **None**
- **Hydrogen sulfide**
- Other:

### Amphipods:
- **Present**
- **Absent**

### Debris (twigs/leaves):
- **Present**
- **Absent**

### Sample Collected Using:

<table>
<thead>
<tr>
<th>Van Veen</th>
<th>Eckman</th>
<th>Ponor</th>
<th>Shovel</th>
</tr>
</thead>
</table>

### Photo Numbers’
- Sediment in Grab:
- **103-C0148**
- Time: **1411**
- Homogenized Sample:
- Time: **1411**
- Other:
- Time: **1411**

### Sediment (SE) Sample ID:
- **Time:**
- **# Containers:**
- **Volume:**
- **%**

### Duplicate SE Sample ID:
- **Time:**
- **# Containers:**
- **Volume:**
- **%**

### Split SE Samples (EPA/NPS/CCT):
- **Time:**
- **# Containers:**
- **Volume:**
- **%**

### Pore Water (PW) Sample ID:
- **Time:**
- **# Containers:**
- **Volume:**
- **%**

### Sample Lead Initials: **MW**
- Date: **09/16/13**

### Field Supervisor Initials: **XO**
- Date: **7/24/13**

---

Sample ID Format:
- **SE-1-C2:** Sediment at Station 1-C2 (Chemistry only)
- **SE-1-B2:** Sediment at Station 1-B2 (Bioassay and Chemistry)
- **PW-1-B2:** Pore Water at Station 1-B2
Sediment/Porewater Sampling Form  
Upper Columbia River RI/FS  
2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>36310189</th>
<th>Station Identifier:</th>
<th>REF-106</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Point (max 3)</td>
<td>5 1 2 3</td>
<td>Water Depth (feet):</td>
<td>16.8'</td>
</tr>
<tr>
<td>Drop #</td>
<td>1 2 3</td>
<td>Cast Time:</td>
<td>1'433</td>
</tr>
<tr>
<td>Angle (&lt; 5°max)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sampler Penetration (inches):</td>
<td></td>
<td>Cultural Resources Observed?</td>
<td>No</td>
</tr>
<tr>
<td>Sample Location:</td>
<td>[NAD_83_UTM_Zone_11_North]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easting:</td>
<td>356560.10</td>
<td>Northing:</td>
<td>531249.94</td>
</tr>
</tbody>
</table>

Sample Acceptance Criteria:

1. Sampler overfilled or sediment pressed against top of sampler?  YES NO
2. Overlying water present?  YES NO
3. Overlying water excessively turbid?  YES NO
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout?  YES NO
5. Desired penetration depth (4 to 6 inches) achieved?  YES NO
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)?  YES NO
7. Sample is:  Accepted Rejected

Porewater
- Cumulative Percent of Porewater Syringe filled:  __%  Accepted Rejected
- pH of Sediment in Sampler:  __ su Description:

Sediment Characteristics
- Type:  % Silt  (<1/16 mm)  Color:  Munsell Color Chart #:  Description:
- % Sand  (1/16 - 2 mm)  Redox:  Present? Yes No
- % Gravel  Boundary:  If present -- Depth Below Sediment Surface (inches):
- % Cobbles  Odor:  None Hydrogen sulfide
- % Silica Glass:

Amphipods:  Tubes:  Macrophytes:
- Debris(twigs/leaves):  Other:

Sample Collected Using
- Stratified sediment:  Yes No
- Sheen Present:  Yes No
- Van Veen
- Eckman
- Ponar
- Shovel
- Sediment in Grab  Time:  1'436
- Homogenized Sample  Time:  Other:

Sediment (SE) Sample ID:  Time:  # Containers:  Volume:  %
Duplicate SE Sample ID:  Time:  # Containers:  Volume:  %
Split SE Samples (EPA/NPS/CCT):  # Containers:  Volume:  %
Pore Water (PW) Sample ID:  Time:  # Containers:  Volume:  %

Sample Lead Initials:  MW  Date:  9/16/13  Field Supervisor Initials:  DH  Date:  9/20/13

Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

URS
## Sediment/Porewater Sampling Form

### Upper Columbia River RI/FS
#### 2013 Phase 2 Sediment Study

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Station Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>36310189</td>
<td>REB 106</td>
</tr>
</tbody>
</table>

### Anchor Point (max 3) | Water Depth (feet)
| 1 | 2 | 3 | 4/46 |

### Drop # | Cast Time
| 1 | 2 | 3 | 14:40 |

### Sampler Penetration (inches)
9"

### Angle (< 5° max)
- Yes
- No

### Cultural Resources Observed
- Yes
- No

### Sample Location:
**EASTING:** 356,509.56
**NORTHING:** 531,1214.36

### Sample Acceptance Criteria:

1. Sample overfilled or sediment pressed against top of sampler? **YES**
2. Overlying water present? **YES**
3. Overlying water excessively turbid? **YES**
4. Sediment surface relatively undisturbed, relatively flat, no sign of channeling or sample washout? **YES**
5. Desired penetration depth (4 to 6 inches) achieved? **YES**
6. Any sign of sediment loss (incomplete closure, penetration at angle, tilting upon retrieval)? **NO**
7. Sample is: **Accepted**

### Porewater
- Cumulative Percent of Porewater Syringe filled: 65%
- Accepted
- Rejected

### Sediment Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Silt</th>
<th>Sand</th>
<th>Gravel</th>
<th>Cobble</th>
<th>Silica Glass</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td></td>
<td>75%</td>
<td></td>
<td></td>
<td></td>
<td>dark grey</td>
</tr>
</tbody>
</table>

### Amphipods:
- Others: Hydrogen sulfide

### Macrophytes:

### Sediment (SE) Sample ID:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)

### Pore Water (PW) Sample ID:
- PW-1-B2: Pore Water at Station 1-B2

### Sample ID Format:
- SE-1-C2: Sediment at Station 1-C2 (Chemistry only)
- SE-1-B2: Sediment at Station 1-B2 (Bioassay and Chemistry)
- PW-1-B2: Pore Water at Station 1-B2

---

**Sample Lead Initials:** AM
**Date:** 6/11/13

**Field Supervisor Initials:** FY
**Date:** 6/11/13
Photo Log
Upper Columbia River RI/FS
2013 Phase 2 Sediment Study

Project: 36310189
Date: 9/18/2013
Camera Serial #: 527504601

Station Identifier: REF-10b
Vessel: Tahoma - mv/ce/ps

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>Time</th>
<th>Photographer</th>
<th>Photo Orientation</th>
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</thead>
<tbody>
<tr>
<td>103-0125</td>
<td>11:07</td>
<td>Michelle Stephens</td>
<td>-</td>
<td>Photo board: REF-10b</td>
</tr>
<tr>
<td>103-0129</td>
<td>11:13</td>
<td>MS</td>
<td>Southwest</td>
<td>Overview of location: REF-10b</td>
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<tr>
<td>103-0126</td>
<td>11:09</td>
<td>MS</td>
<td>East</td>
<td>Overview of location</td>
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<tr>
<td>103-0130</td>
<td>11:18</td>
<td>MS</td>
<td>-</td>
<td>Sediment in Grab #1</td>
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<tr>
<td>103-0127</td>
<td>11:09</td>
<td>MS</td>
<td>West</td>
<td>Overview of location</td>
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<td>103-0131</td>
<td>11:25</td>
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<td>103-0128</td>
<td>11:10</td>
<td>MS</td>
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<td>Rocks/Water at Grab #1</td>
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<tr>
<td>103-0132</td>
<td>11:32</td>
<td>MS</td>
<td>-</td>
<td>Sediment in Grab #3</td>
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Field Supervisor Initials: ZOD Date: 9/18/13
Sample Lead Initials: nwm Date: 9/18/13
<table>
<thead>
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<th>Photo Orientation</th>
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<td>11:41</td>
<td>MS</td>
<td></td>
<td>Sediment in Grab #3</td>
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<tr>
<td>103-0137</td>
<td>12:16</td>
<td>MS</td>
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<td>Sediment in Grab #5</td>
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<td>103-0134</td>
<td>11:42</td>
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<td>Sediment in Scoop from Grab #3</td>
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<td>103-0138</td>
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<td>103-0135</td>
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<td>Periwite Sample from Grab #3</td>
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<td>103-0140</td>
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<td>Sand from Grab #6</td>
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<tr>
<td>Photo ID</td>
<td>Time</td>
<td>Description</td>
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<td>Time</td>
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<td>103-0141</td>
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<td>103-0144</td>
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<tr>
<td>103-0149</td>
<td>14:11</td>
<td>Sediment in Grab #12</td>
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<tr>
<td>103-0150</td>
<td>14:34</td>
<td>Sediment in Grab #13</td>
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<td>103-0151</td>
<td>14:44</td>
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<td>103-0152</td>
<td>14:51</td>
<td>Scoop from Grab #14</td>
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<td>103-0153</td>
<td>15:20</td>
<td>Sediment in Lexan Tube, Grab #14 Homogenized</td>
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<td>103-0154</td>
<td>15:29</td>
<td>Chain of Custody for NPS Broussard Sample</td>
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</tbody>
</table>

Field Supervisor Initials: KOY  Date: 9/18/13
Sample Lead Initials: MV  Date: 9/18/13