

## WASTE SITE RECLASSIFICATION FORM

Operable Unit: 100-NR-1

Control No.: 2012-068

Waste Site Code(s)/Subsite Code(s): 1908-N, 1908-N Outfall

Reclassification Category: Interim  Final

Reclassification Status: Closed Out  No Action  Rejected   
RCRA Postclosure  Consolidated  None

Approvals Needed: DOE  Ecology  EPA

**Description of current waste site condition:**

The 1908-N Outfall consisted of an open-topped, compartmentalized, reinforced concrete structure located in the 100-NR-1 Operable Unit. The outfall received more than 2 million cubic meters per day of single pass raw water from the 105-N Reactor circulating raw water system and discharged it to the Columbia River. A 260 cm (102 in) pipeline discharged into the southeast face of the structure, and a 260 cm (102 in) pipeline exited the northwest face to the Columbia River. The remove/dispose remedial alternative was selected for the 1908-N Outfall in the *Interim Action Record of Decision for the 100-NR-1 and 100-NR-2 Operable Units, Hanford Site, Benton County, Washington* (100-N Area ROD), U.S. Environmental Protection Agency, Region 10, Seattle, Washington (EPA 1999).

Demolition of the 1908-N Outfall was performed March 2012 through June 2012. The entire above- and below-grade structure was removed, including the concrete floor, with the exception of a below-grade portion of the north wall that was encased within a lean concrete monolith. The concrete monolith remaining after demolition of the structure was sampled on April 26, 2012, to support a decision for leaving this concrete monolith in place. An evaluation of the results of this sampling indicated that residual contaminant concentrations in the concrete do not preclude any future uses (as bounded by the rural-residential scenario) and allow for unrestricted use of the site. The results also demonstrate that residual contaminant concentrations in the concrete are protective of groundwater and the Columbia River. The Sampling Determination Form included with the Facility Status Change Form documents that there is no indication that any portion of the 1908-N facility or the underlying soil was ever contaminated and that analytical results for the sample collected from the concrete monolith is sufficient to support closeout of this waste site. The removal action was performed in accordance with the *Removal Action Work Plan (RAWP) for 100-N Area Ancillary Facilities* (DOE-RL-2002-70, Rev. 3) and included removal and disposal of demolition debris at the ERDF. Additional information concerning removal of the 1908-N Outfall is provided in the Facility Status Change Form, Control # D4-100N-0038. Based on the information presented in the Facility Status Change Form, the 1908-N is proposed for reclassification as Interim Closed Out with no institutional controls.

**Basis for reclassification:**

The 1908-N Outfall was removed as specified in the RAWP (DOE-RL-2002-70, Rev. 3). The results of this removal action, including visual inspection of the remaining portion of the outfall structure and sampling of the remaining concrete monolith support a decision that residual contaminant concentrations in the concrete do not preclude any future uses (as bounded by the rural-residential scenario) and allow for unrestricted use of the site. The results also demonstrate that residual contaminant concentrations in the concrete are protective of groundwater and the Columbia River. The basis for reclassification is described in detail in the Facility Status Change Form, Control # D4-100N-0038, for the 1908-N Outfall Facility.

# WASTE SITE RECLASSIFICATION FORM

Operable Unit: 100-NR-1

Control No.: 2012-068

Waste Site Code(s)/Subsite Code(s): 1908-N, 1908-N Outfall

**Regulator comments:**

**Waste Site Controls:**

Engineered Controls:  Yes  No Institutional Controls:  Yes  No O&M Requirements:  Yes  No

If any of the Waste Site Controls are checked Yes, specify control requirements including reference to the Record of Decision, TSD Closure Letter, or other relevant documents:

J. P. Neath

DOE Federal Project Director (printed)

Signature

8/30/12

Date

N. Menard

Ecology Project Manager (printed)

Signature

9/6/12

Date

N/A

EPA Project Manager (printed)

Signature

Date

**1908-N, 1908-N REACTOR OUTFALL FACILITY  
STATUS CHANGE FORM**

**Attachment to Waste Site Reclassification Form 2012-068**

**September 2012**

## FACILITY STATUS CHANGE FORM

<b>Date Submitted:</b> Jul 19, 2012 <b>Originator:</b> David Warren <b>Phone:</b> (509) 539-6040	<b>Area:</b> 100-N <b>Facility ID:</b> 1908-N Reactor Outfall <b>Action Memorandum:</b> 100-N Ancillary Facilities	<b>Control #:</b> D4-100N-0038
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**This form documents agreement among the parties listed below on the status of the facility D&D operations and the disposition of underlying soil in accordance with the applicable regulatory decision documents.**

### Section 1: Facility Status

- All D4 operations required by action memo complete.
- D4 operations required by action memo partially complete, remaining operations deferred.

#### **Description of Completed Activities and Current Conditions:**

**Deactivation:** No utility isolation was necessary for 1908-N prior to beginning facility decontamination and decommissioning. The lines feeding discharging to the structure were inactive and had previously been removed. The spillway leading out of the structure (WIDS 100-N-77) was air gapped by Field Remediation (FR), the discharge line (WIDS 100-N-79) leading to the river was excavated and air gapped by D4, and had previously been air gapped by FR downstream of that point.

**Decontamination and Decommissioning:** The following hazardous materials, if present, were removed prior to facility demolition: batteries, light bulbs, oils, grease, asbestos-containing material (ACM), mercury, refrigerant and polychlorinated biphenyls. Hazardous material removal and waste disposition was performed in accordance with *Removal Action Work Plan for 100-N Ancillary Facilities, DOE/RL-2002-70, Revision 3 (RAWP)*. None of these materials were present in the 1908-N facility as it was an outfall for discharging reactor cooling water.

**Demolition:** Demolition of the above-grade structure began in March 2012. The 1908-N below-grade, including removal of the entire below grade structure minus a section of the north wall that was encased in a lean fill monolith (See Attachment 6, CCN 165819), began in March of 2012 and was complete in June of 2012. Size reduction of demolition debris and loadout activities spanned the entire time period. Demolition debris was disposed of at the Environmental Restoration Disposal Facility (ERDF). There were no contaminants of concern for demolition as the facility was not contaminated with radiological constituents as was previously thought. Radiological surveys performed prior to, during, and following demolition did not identify contamination. There was one anomaly encountered during demolition of the 1908-N facility, that being the lean fill concrete monolith base that the structure was constructed upon. In consultation with the Department of Ecology, the monolith was sampled and analyzed and it was subsequently determined that it did not contain any contaminant in sufficient concentration to threaten the groundwater or the Columbia River. As a result of this analysis and determination, the Washington State Department of Ecology provided approval of leaving the monolith in place (See Attachment 5 CCN 166186).

#### **Description of Deferral (as applicable):**

None. All D4 actions are complete.

### Section 2: Underlying Soil Status

- No waste site(s) present. No additional actions anticipated.
- Documented waste site(s) present. Cleanup and closeout to be addressed under Record of Decision.
- Potential waste site discovered during D4 operations. Waste site identification number <to be> assigned. Cleanup and closeout to be addressed under Record of Decision.

## FACILITY STATUS CHANGE FORM

### Description of Current/As-Left Conditions:

Minus one section of below grade wall that was encased in the lean fill monolith (See Attachment 6, 165819), the entire above and below grade of the 1908-N facility was completely demolished. Additionally, the lean fill concrete monolith discovered during the below grade demolition was sampled, analyzed, and approved to be left in situ by the Washington State Department of Ecology (See Attachment 5 CCN 166186). The excavation currently remains open and following approval of the Waste Site Reclassification Form for the 1908-N WIDS site, will be backfilled with clean borrow material by FR.

The Sampling Determination Form (Attachment 7) is part of a process implemented by the *Removal Action Work Plan for 100-N Area Ancillary Facilities*, DOE/RL-2002-70, Revision 3. The Sampling Determination Form for the 1908-N Facility (SDF-100N-027) represents a regulatory agreement between DOE and the Lead Regulator (Ecology), and indicates that the requirements of the Action Memorandum have been met with respect to demonstrating that cleanup criteria, MTCA Method B for Chemical Constituents and 15 mRem above Hanford Site background for Radiological Constituents, have been achieved for soils and structures remaining after facility removal. Further action will not be required by the D4 organization to demonstrate that cleanup criteria have been met for the 1908-N Facility.

### Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):

Multiple WIDS sites are associated with, or in the general proximity of the 1908-N Facility. Unless specified otherwise, accepted waste sites will be addressed under the 100-NR-1/100-NR-2 OU Interim Action ROD.

WIDS site 1908-N (accepted) was the 1908-N Reactor Outfall structure that received raw river water used to cool the secondary cooling water for the N Reactor. The site was an outfall structure (seal well) that was used as a sump for several discharge lines and to drop the liquid discharge level for overflow to the river. The outfall also discharged to a flume (WIDS 100-N-79) which was used as an alternative to the river pipelines (WIDS 100-N-77). It was believed that radioactive contamination existed within the structure because the discharge lines were associated with the reactor secondary steam system. However, radiological surveys performed prior to, during, and following demolition did not identify radiological contamination. Minus one section of below grade wall and lean fill concrete monolith base, the 1908-N structure was completely removed.

WIDS site 100-N-77 (accepted) consists of one 102 in. diameter steel pipeline that extends 871 ft from the face of the 1908-N Outfall into the main channel of the Columbia River. This site was air gapped by D4 just below the connection point with the 1908-N. Additionally, the site had previously been air gapped downstream of the connection point by FR during remediation of the 100-N-84:5 WIDS site. No interim action will be taken on this river effluent pipeline. This site will be dispositioned through the process of developing the final action Records of Decision(s) (RODS).

WIDS site 100-N-79 (accepted) is the 1908-N spillway (also referred to as an "emergency outfall"). It is constructed of reinforced concrete, and extends from the 1908-N Outfall, under a service road, and discharges at the low water mark on the river shore 367 ft from the outfall. There is no evidence that the spillway was ever intended or expected to be used. The outfall was previously severed (2011) by FR during remediation of the 100-N-84:5 WIDS site. D4 impacted only the section of the spillway connected to the 1908-N outfall structure. The remainder of the structure will be addressed under the 100-NR-1/100-NR-2 OU Interim Action ROD.

100-N-61:1 (accepted) was the WIDS pipeline that discharged to the 1908-N facility. The section of line feeding the outfall was removed by FR in 2011.

100-N-84:2 (accepted) is a system of 2" diesel fuel return lines that run throughout the 100-N Area. A section of this line ran near the upper portion of the 1908-N outfall structure. This site was not affected by D4, however, it had previously been removed by FR and multiple sections of the line have been removed by FR at locations throughout the 100-N Area.

### Section 3: List of Attachments

1. Facility Information - Building History and Characterization
2. Pre- and Post-Demolition Photographs
3. WIDS Sites General Location Map
4. Pre- and Post-Demolition GPS Surveys
5. Ecology Approval to leave 1908-N concrete monolith CCN 166186.

# FACILITY STATUS CHANGE FORM

6. Ecology Approval to leave a small section of the 1908-N wall stuck in below grade corner of the monolith CCN 165819 (includes post demolition GPER5 surveys)

7. Sampling Determination Form for the 1908-N Facility (SDF-100N-027).

Rudy Guercia		8/14/12
DOE-RL		Date
Nina Menard		8/22/12
Lead Regulator	<input type="checkbox"/> EPA <input checked="" type="checkbox"/> Ecology	Date

**DISTRIBUTION:**

EPA: Dennis Faulk, B1-46

Ecology: Wanda Elliott, H0-57

DOE: Rudy Guercia, A3-04

Document Control, H0-30

Administrative Record, H6-08 (100-NR-2)

SIS Coordinator: Benjamin Cowin, H4-22

D4 EPL: Clay McCurley, X5-50

Sample Design/Cleanup Verification: Megan Proctor, H4-22

FR Engineering: Rich Carlson, N3-30

FR EPL: Dan Saueressig, N3-30

100-N D4 Project Facility Completion Form

**Attachment 1: Facility Information (4 pages)**

## 100-N D4 Project Facility Completion Form

### Introduction

This document provides information regarding the 1908-N facility history, characterization and final status at the completion of deactivation, decontamination, decommissioning, and demolition (D4) activities.

### Site Information

The 1908-N Reactor Outfall (commonly referred to as a seal well outfall) was used as a sump for several discharge lines and to drop the liquid discharge level for overflow to the river. The outfall also discharged to a flume, which was used as an alternative to the river pipelines. 1908-N was located west of the 109-N building, west of the 1300-N Emergency Dump Basin and south of the 1301-N Emergency Dump Tank on a steep bank, which leads to the river. The structure was 69-foot long by 33-foot wide by 23-foot deep. See Attachment 2 for pre-demolition pictures. The outfall had a 102 in. line discharged into the southeast face of the structure, and a 102 in. pipeline exited the northwest face to the Columbia River. It received more than two million cubic meters per day of single pass raw water from the Circulating Raw Water (CRW) System, and discharged into the river. The CRW supplied once-through untreated river water to 16 dump condensers and 7 surface condensers. It was once thought that radioactive contamination existed within the structure because the discharge lines were associated with the reactor secondary steam system. This presumption was later proved to be false because scoping, in process, and final radiological surveys never identified contamination within the facility, demolition debris, or excavation remaining following demolition.

### Radiological Scoping and Industrial Hygiene Baseline Surveys

Radiological scoping surveys were performed on the 1908-N facility prior to and during demolition. These surveys did not identify contamination and the results are summarized in Table 1 below. The subsequent post demolition Global Positioning Environmental Radiological Surveyor (GPERS) survey did not identify contamination within the 1908-N excavation (See Attachment 6). There were no Industrial Health Baselines performed for the facility as the facility was clean concrete and no hazardous substances were present. A Beryllium Facility Assessment (BFA) form was completed on November 3, 2011 and classified the facility as a "Beryllium Clean Facility."

**Table 1. Summary of Scoping Surveys**

Type	Quantity	Method Detection Limits	Results
Radiological Scoping and in process Surveys	Multiple. Each surveyed area included multiple sample locations and consisted of technical smears and direct readings.	In General- Alpha – 20 removable / 100 fixed (dpm/100cm <sup>2</sup> ) Beta-gamma – 1,000 removable / 5,000 fixed (dpm/100cm <sup>2</sup> )	Survey results were below method detection limits.

## 100-N D4 Project Facility Completion Form

### **Facility & Waste Characterization Sampling**

A certified asbestos inspection was conducted on June 19, 2006. No samples were taken, but a visual inspection of 1908-N was conducted and no Potential ACM was visible during the inspection. There were no samples taken of the 1908-N for waste characterization/designation purposes. 2 Samples were taken of the lean concrete monolith to identify whether or not the monolith could be left in place. Analysis of these samples, as well as Ecology approval to leave the monolith buried in situ, are provided in Attachment 5.

### **Demolition**

The 1908-N below-grade, including removal of the entire below grade structure minus a section of the north wall that was encased in the concrete monolith (See Attachment 6, CCN 165819), began in March of 2012 and was complete in June of 2012. Size reduction of demolition debris and loadout activities spanned the entire time period. Demolition debris was disposed of at the Environmental Restoration Disposal Facility (ERDF).

### **Post Demolition Radiological Surveys**

A final GPERS survey over the interior footprint of the 1908-N basement was conducted in May 2012. 1373 data points were measured and no data point was greater than 1.5 times the average background of 1,204 counts per minute. A copy of the survey map is included in Attachment 6.

### **Civil Survey Information**

Pre- and post-demolition Global Positioning System (GPS) survey(s) of 1908-N were performed in June of 2012. All surveys are included in Attachment 4.

### **Anomalies**

There was one anomaly encountered during demolition of the 1908-N facility, that being the lean fill concrete monolith base that the structure was constructed upon. In consultation with the Department of Ecology, the monolith was sampled and analyzed and it was subsequently determined that it did not contain any contaminant in sufficient concentration to threaten the groundwater or the Columbia River. As a result of this analysis and determination, the Washington State Department of Ecology provided approval of leaving the monolith in place (See Attachment 5 CCN 166186).

### **Final Building Status**

The RCC contractor has demolished and removed the above and below grade of the 1908-N Facility. Minus one section of below grade wall that was encased in the lean fill monolith (See Attachment 6), the entire above and below grade of the 1908-N facility was completely demolished. A visual inspection was performed of the excavation/remaining structure and no staining was observed. Additionally, the lean fill concrete monolith discovered during the below grade demolition was sampled, analyzed, and approved to be left in situ by the Washington State

## 100-N D4 Project Facility Completion Form

Department of Ecology (See Attachment 5 CCN 166186). The excavation currently remains open and following approval of the Waste Site Reclassification Form, will be backfilled with clean borrow material by FR.

100-N D4 Project Facility Completion Form

**Attachment 2. Project Photographs (2 Pages)**

**Figure 1. 1908-N Reactor Outfall before Demolition**



**Figure 2. Aerial Photograph of 1908-N Reactor Outfall before Demolition**



100-N D4 Project Facility Completion Form

**Figure 3. 1908-N excavation following Demolition (monolith on left and in background)**

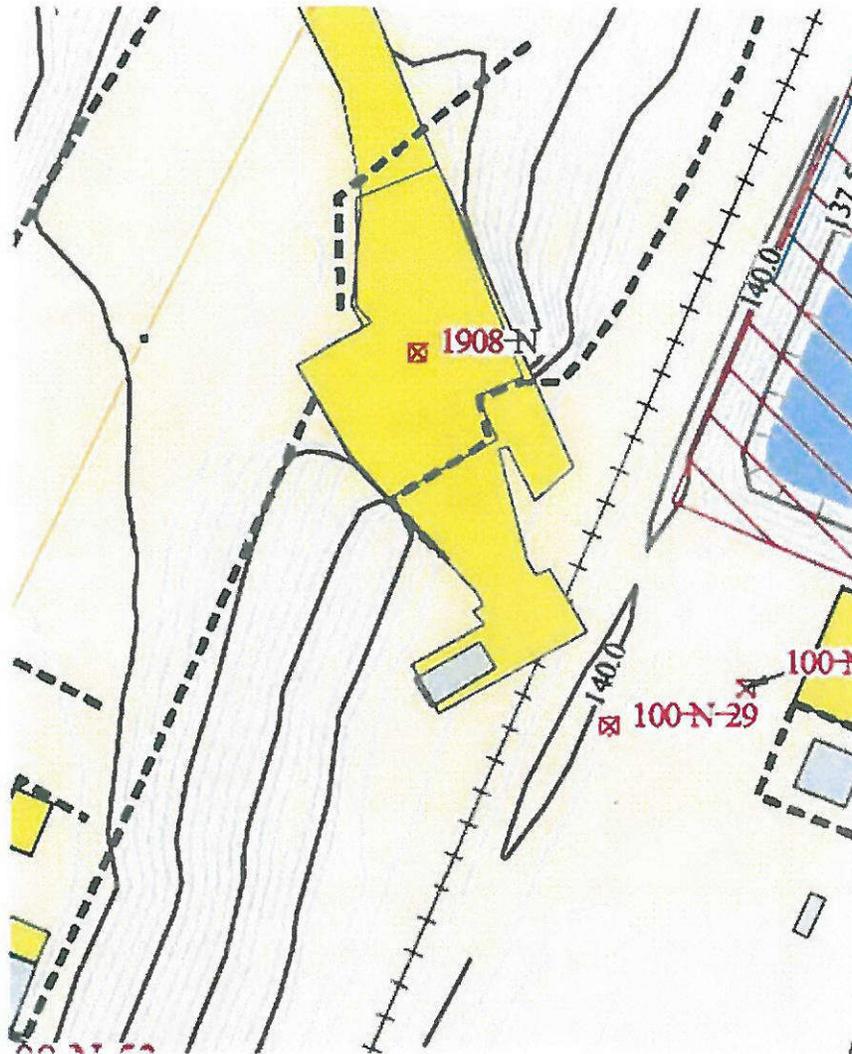


**Figure 4. Aerial Photograph of 1908-N following Demolition**



100-N D4 Project Facility Completion Form

Attachment 3. WIDS sites general location map



100-N D4 Project Facility Completion Form

**Attachment 4. Pre- and Post-Demolition GPS Surveys (5 Pages)**

# GPS Pre Demo Survey for 1908N

Project : pre-1908N

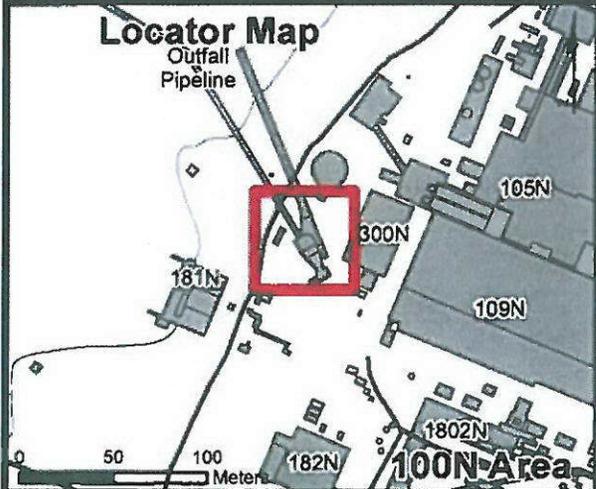
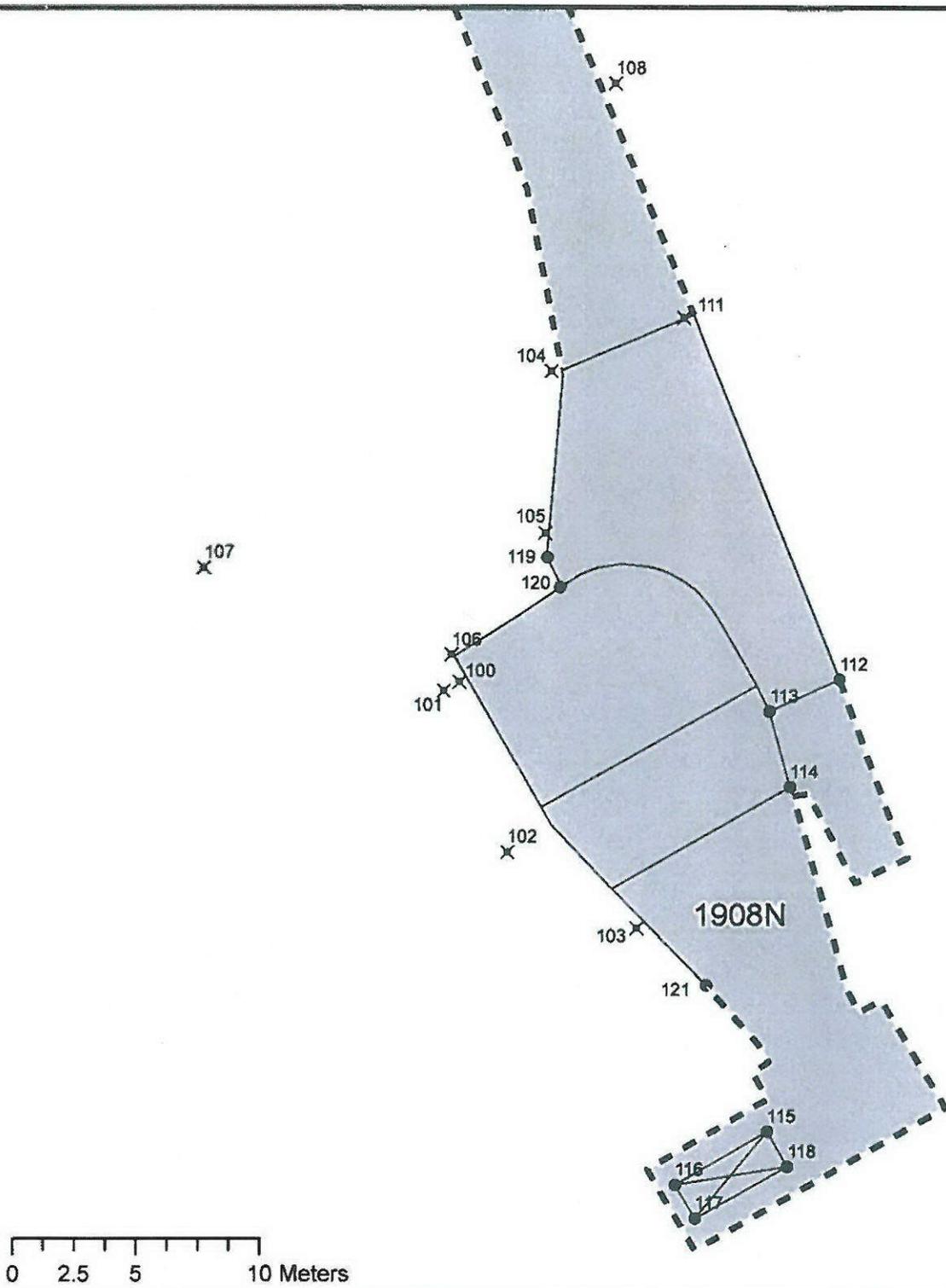
User name	maaye	Date & Time	10:40:54 AM 6/11/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

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Survey Project Name: Pre Demo Survey for 1908N  
 Date: 6/11/2012  
 Equipment: 5800  
 Survey Purpose: Pre Demo Survey for 1908N  
 Requested By: Thomas Yamamoto  
 Location: 100N  
 Charge Code:  
 Field Surveyor: Margo Aye  
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11  
 Survey Equipment Used: 5800  
 Control Monuments Used: N-2  
 Survey Method: RTK  
 Horizontal Precision: .020m  
 Vertical Precision: .050m  
 Fieldwork Start Date: 01/16/12  
 Fieldwork Completion Date: 01/16/12  
 Notes: Not all areas of the building were accessible so they were derived via GIS.

Name	Northing	Easting	Elevation	Feature Code	Description:
N-2	149644.179m	571811.158m	144.761m		
100	149495.947m	571060.091m	130.513m	Elevation-chk	
101	149496.311m	571060.734m	130.824m	bldg-edge	
102	149489.391m	571062.708m	133.366m	elev-verify	
103	149486.298m	571067.972m	136.767m	bldg-edge	
104	149508.941m	571064.421m	131.226m	bldg-corner	
105	149502.385m	571064.189m	131.156m	bldg-edge	
106	149497.425m	571060.401m	130.692m	bldg-coner	
107	149500.978m	571050.392m	130.123m	elev-chk	
108	149520.618m	571066.965m	131.475m	elev-chk	
109	149505.265m	571045.959m	130.034m	elev-chk	
110	149499.643m	571041.666m	129.627m	elev-chk	
111	149511.109m	571069.768m	131.687m	bldg-corner	
112	149496.424m	571076.139m	0.000m	GIS Derived	
113	149495.127m	571073.296m	0.000m	GIS Derived	
114	149492.038m	571074.130m	0.000m	GIS Derived	
115	149478.044m	571073.269m	0.000m	GIS Derived	
116	149475.874m	571069.564m	0.000m	GIS Derived	
117	149474.512m	571070.381m	0.000m	GIS Derived	
118	149476.610m	571074.090m	0.000m	GIS Derived	
119	149501.397m	571064.287m	0.000m	GIS Derived	
120	149500.172m	571064.810m	0.000m	GIS Derived	
121	149483.975m	571070.787m	0.000m	GIS Derived	

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## GPS Pre Demo Report For 1908N

- × GPS Point Locations
- GIS Derived
- Building Location (Pre Demolition)
- - - 1908N Below Grade

US State Plane 1983; Zone: Washington South 4602;  
NAD83, NAVD88; Units are in Meters  
Elevation Data Derived from 2008 LIDAR Data

# GPS Post Demo Survey for 1908N

## Project : 1908N-181N

User name	maaye	Date & Time	7:30:09 AM 6/19/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

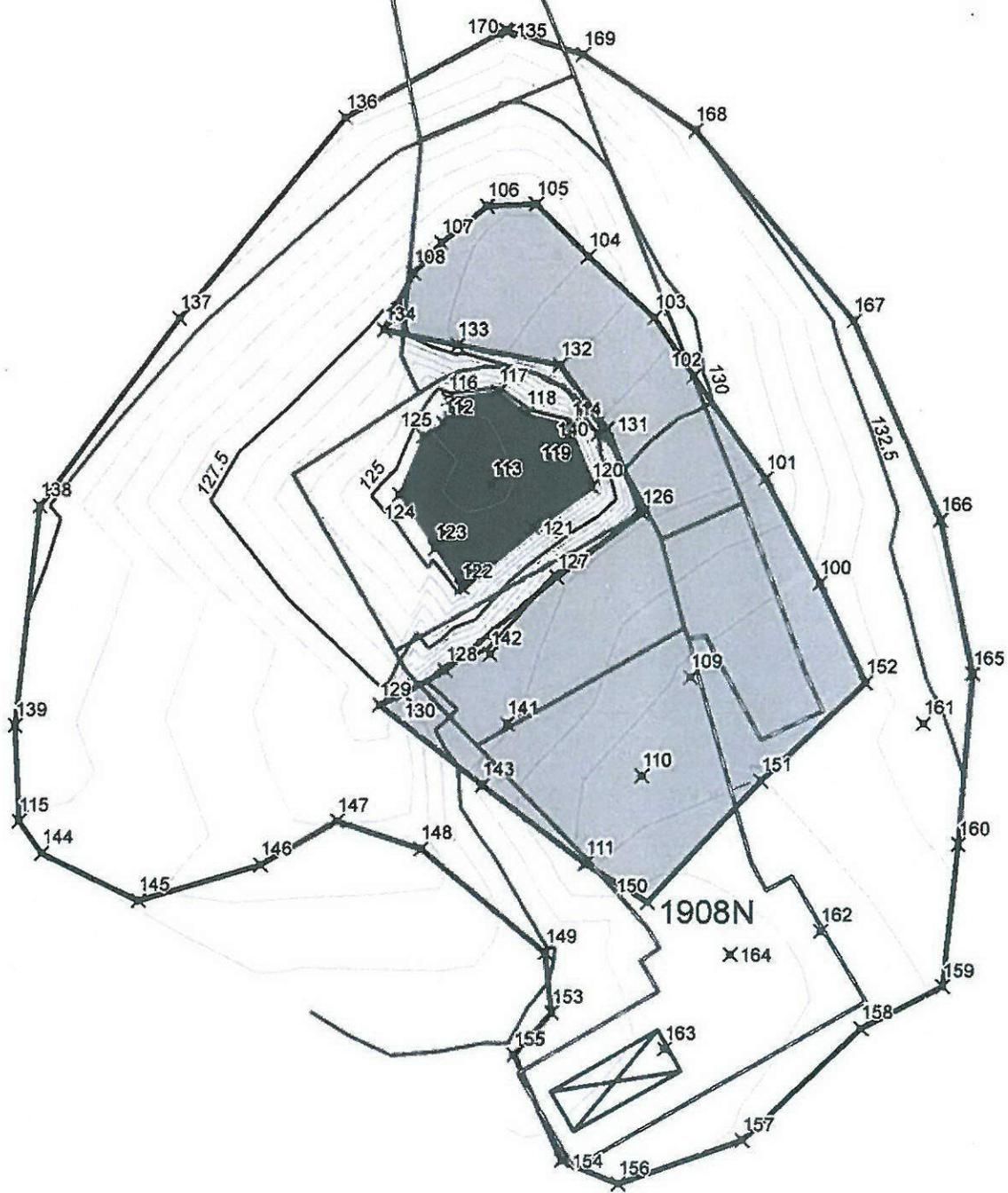
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Survey Project Name: Post Demo Survey for 1908N  
 Date: 6/12/2012  
 Equipment: 5800  
 Survey Purpose: Map excavation footprint  
 Requested By: Mark Allen  
 Location: 100N  
 Charge Code:  
 Field Surveyor: Margo Aye  
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11  
 Survey Equipment Used: 5800  
 Control Monuments Used: N-2  
 Survey Method: RTK  
 Horizontal Precision: .020m  
 Vertical Precision: .050m  
 Fieldwork Start Date: 5/31/12  
 Fieldwork Completion Date: 6/12/12  
 Notes:

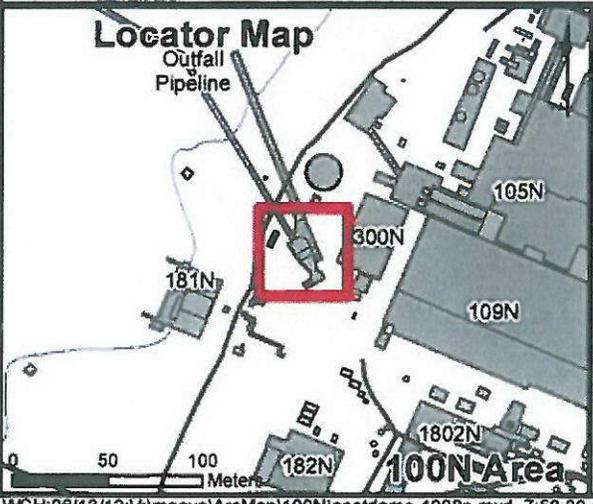
Name	Northing	Easting	Elevation	Feature Code	Description:
100	149493.619m	571078.825m	131.623m	1908N-top	
101	149497.267m	571076.918m	130.556m	1908N-topo	
102	149500.811m	571074.389m	129.808m	1908N-topo	
103	149502.828m	571073.000m	129.265m	1908N-topo	
104	149504.965m	571070.708m	128.517m	1908N-topo	
105	149506.759m	571068.896m	127.861m	1908N-toe-top	
106	149506.683m	571067.196m	127.882m	1908N-toe-top	
107	149505.415m	571065.611m	127.852m	1908N-toe-top	
108	149504.347m	571064.648m	127.736m	1908N-toe-top	
109	149490.315m	571074.363m	131.625m	1908N-mono-top	
110	149486.869m	571072.671m	131.962m	1908N-mono-top	
111	149483.805m	571070.732m	131.591m	1908N-mono-top	
112	149499.153m	571065.723m	124.376m	toe	
113	149497.004m	571067.416m	124.423m	topo	
114	149499.085m	571070.146m	124.555m	toe	
115	149485.251m	571051.101m	129.491m	cp	
116	149499.998m	571065.867m	124.598m	toe	
117	149500.260m	571067.617m	124.751m	toe	
118	149499.487m	571068.598m	124.609m	toe	
119	149498.727m	571070.146m	124.749m	toe	
120	149496.968m	571070.856m	124.788m	toe	
121	149495.530m	571068.832m	124.643m	toe	
122	149493.437m	571066.379m	124.722m	toe	
123	149494.792m	571065.455m	124.603m	toe	
124	149496.648m	571064.211m	124.566m	toe	
125	149498.692m	571065.033m	124.573m	toe	
126	149496.043m	571072.620m	130.429m	mono-edge	
127	149493.800m	571069.693m	130.417m	mono-edge	
128	149490.534m	571065.838m	130.381m	mono-edge	
129	149489.303m	571063.570m	127.780m	mono-edge	
130	149489.710m	571064.410m	129.544m	mono-edge	
131	149498.975m	571071.376m	129.582m	mono-edge	
132	149501.179m	571069.749m	128.983m	mono-edge	
133	149501.845m	571066.183m	128.074m	mono-edge	
134	149502.379m	571063.640m	127.231m	mono-edge	
135	149512.802m	571067.778m	131.721m	top-ex-slope	

136	149509.739m	571062.269m	131.264m	top-ex-slope
137	149502.766m	571056.548m	130.432m	top-ex-slope
138	149496.245m	571051.763m	130.146m	top-ex-slope
139	149488.578m	571050.962m	129.847m	top-ex-slope
140	149498.794m	571071.071m	127.122m	side-wall
141	149488.666m	571068.002m	130.428m	mono-topo
142	149491.099m	571067.397m	130.462m	mono-topo
143	149486.526m	571067.148m	130.685m	mono-topo
144	149484.128m	571051.891m	129.313m	top-edge
145	149482.477m	571055.264m	129.056m	top-edge
146	149483.737m	571059.482m	128.775m	top-edge
147	149485.253m	571062.126m	128.490m	top-edge
148	149484.305m	571065.023m	128.741m	top-edge
149	149480.705m	571069.358m	129.911m	top-edge
150	149482.485m	571072.882m	130.832m	top-edge
151	149486.724m	571076.814m	131.477m	top-edge
152	149490.153m	571080.446m	131.791m	top-edge
153	149478.618m	571069.585m	130.094m	topo
154	149473.487m	571069.966m	130.639m	topo
155	149477.145m	571068.283m	130.080m	topo
156	149472.669m	571071.928m	130.923m	topo
157	149474.200m	571076.245m	131.048m	topo
158	149478.123m	571080.351m	131.142m	topo
159	149479.579m	571083.164m	131.579m	topo
160	149484.529m	571083.678m	132.130m	topo
161	149488.743m	571082.446m	132.204m	topo
162	149481.503m	571078.932m	131.142m	topo
163	149477.362m	571073.519m	130.646m	topo
164	149480.670m	571075.782m	130.777m	topo
165	149490.479m	571084.155m	133.061m	top
166	149495.838m	571083.005m	133.126m	top
167	149502.754m	571079.947m	132.876m	top
168	149509.344m	571074.408m	132.487m	top
169	149511.960m	571070.494m	131.762m	top
170	149512.773m	571067.881m	131.481m	top

[Back to top](#)



US State Plane 1983; Zone: Washington South 4602;  
NAD83, NAVD88; Units are in Meters



### GPS Post Demo Report For 1908N

- x GPS Points (See Survey Report for Point Details)
- Major Contour 2.5m
- Minor Contour .5m
- █ Excavation Toe
- ▒ Excavation Daylight
- ▒ Monolith
- - - 1908N Below Grade (Pre Demolition)
- ▭ Building Location (Pre Demolition)

100-N D4 Project Facility Completion Form

**Attachment 5. Ecology Approval to leave the concrete monolith CCN 166186 (8 Pages)**

**^WCH Document Control**

---

**From:** Warren, David J  
**Sent:** Thursday, June 07, 2012 8:41 AM  
**To:** ^WCH Document Control  
**Subject:** FW: 1908-N Evaluation of Concrete Monolith

**Attachments:** 1908-N Concrete Evaluation\_HEIS Number Correction.doc

Please CHRON this e-mail and the attachment as 1908-N Approval to leave concrete monolith. I would like this document to replace the document that was previously assigned this title and number of 165639, or at least assigned that number and rev. 1, as the original document assigned that number had an error that required correction. Please let me know if this is not possible. Thanks

David Warren  
100-N EPL  
539-6040

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ECY.WA.GOV]  
**Sent:** Wednesday, June 06, 2012 3:29 PM  
**To:** Warren, David J  
**Subject:** RE: 1908-N Evaluation of Concrete Monolith

No problem.

**Wanda Elliott**  
(509) 372-7904  
**Environmental Scientist**  
**Nuclear Waste Program**  
**Washington State Department of Ecology**

---

**From:** Warren, David J [mailto:djwarren@wch-rcc.com]  
**Sent:** Wednesday, June 06, 2012 3:29 PM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Boyd, Alicia (ECY); McCurley, Clay D  
**Subject:** RE: 1908-N Evaluation of Concrete Monolith

Wanda,

The incorrect sample number(s) was the only issue. Thanks.

Dave

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ECY.WA.GOV]  
**Sent:** Wednesday, June 06, 2012 3:26 PM  
**To:** Warren, David J  
**Cc:** Boyd, Alicia; McCurley, Clay D  
**Subject:** RE: 1908-N Evaluation of Concrete Monolith

**If the only issue was typos in the sample numbers then I still approve. If the sample results changed then I will need to re-evaluate the data. My guess is that you just typed the sample numbers.**

**Wanda Elliott**

6/11/2012

**(509) 372-7904**  
**Environmental Scientist**  
**Nuclear Waste Program**  
**Washington State Department of Ecology**

---

**From:** Warren, David J [mailto:djwarren@wch-rcc.com]  
**Sent:** Wednesday, June 06, 2012 3:13 PM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Boyd, Alicia (ECY); McCurley, Clay D  
**Subject:** RE: 1908-N Evaluation of Concrete Monolith

Wanda,

We found a mistake with respect to the sample numbers that were referenced in the evaluation of the sample data for the 1908-N Concrete Monolith that was attached to the e-mail that Mr. McCurley sent you below. The sample numbers referenced should have been J1P170 and J1P171, rather than J19170 and J19171 as was listed in the original evaluation. We have corrected the mistake (see attached) and wish to re-submit for your approval. Please contact me if you have any questions. Thanks.

Dave Warren  
539-6040

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ECY.WA.GOV]  
**Sent:** Thursday, May 10, 2012 3:55 PM  
**To:** McCurley, Clay D  
**Cc:** Warren, David J; Thompson, Wendy S; Boyd, Alicia; Menard, Nina  
**Subject:** RE: 1908-N Evaluation of Concrete Monolith

Clay,

**We reviewed the data and approve of leaving the monolith in place. Can you make sure that the attachment can be referenced at a later date?**  
**Thanks,**

**Wanda Elliott**  
**(509) 372-7904**  
**Environmental Scientist**  
**Nuclear Waste Program**  
**Washington State Department of Ecology**

---

**From:** McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]  
**Sent:** Thursday, May 10, 2012 1:14 PM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Warren, David J; Thompson, Wendy S; Boyd, Alicia (ECY)  
**Subject:** 1908-N Evaluation of Concrete Monolith

Wanda. As requested by Ecology, we collected and analyzed a sample of the lean concrete around and beneath the 1908-N Reactor Outfall. Attached is the evaluation. In accordance with the *Removal Action Work Plan* for

6/11/2012

*100-N Area Ancillary Facilities* (DOE/RL-2002-70, Rev. 3), we are requesting Ecology's approval to leave this concrete in place. I can also provide you with a report summarizing how the sample was collected if you need it. Contact me if you have any questions.

Clay

## Evaluation of 1908-N Monolith Concrete Sample

### Introduction

On April 26, 2002, a sample of concrete was collected from the 1908-N concrete monolith that remains after demolition of the 1908-N Outfall structure (Figure 1). The sample was chipped from the monolith and submitted for laboratory analysis to evaluate potential contaminant concentrations and make a decision concerning whether or not this material may remain in place or requires removal as provided in the *Removal Action Work Plan for 100-N Area Ancillary Facilities* (DOE-RL 2012). The concrete sample was collected in accordance with ENV-1, *Environmental Monitoring & Management*, to fulfill the requirements of the *100-N Area Remedial Action Sampling and Analysis Plan for CERCLA Waste Sites* (SAP) (DOE-RL 2006a).

### Data Evaluation

Analytical results for this concrete sample (Tables 1 and 2) were conservatively compared against the applicable cleanup criteria for soil as presented in the *Remedial Design Report/Remedial Action Work Plan for the 100-N Area* (DOE-RL 2006b). An evaluation of these results show that residual contaminant concentrations in the concrete do not preclude any future uses (as bounded by the rural-residential scenario) and allow for unrestricted use of shallow zone soils (i.e., surface to 4.6 m [15 ft] deep). The results also demonstrate that residual contaminant concentrations are protective of groundwater and the Columbia River.

Comparison of the concrete sample results for the monolith against the soil cleanup criteria are provided in Table 3. Contaminants that were not detected by laboratory analysis are excluded from the comparison table. Calculated cleanup levels are not presented in the Cleanup Levels and Risk Calculations database (Ecology 2011) under WAC 173-340-740(3) for calcium, magnesium, potassium, silicon, and sodium. The EPA's *Risk Assessment Guidance for Superfund* (EPA 1989) recommends that aluminum and iron not be considered in site risk evaluations. Therefore, aluminum, calcium, iron, magnesium, potassium, silicon, and sodium are not considered site COPCs and are not included in this table. Potassium-40, uranium-238/uranium-234 (including secular equilibrium daughters, radium-226 and bismuth-214), thorium-232 (including secular equilibrium daughters thorium-228, radium-228, and lead-212) were detected at levels typical for concrete and are not considered further since these isotopes are naturally occurring and not related to the operational history of the site.

Evaluation of the results provided in Table 3 indicate that all COPCs were either undetected or were quantified below remedial action goals (RAGs) and soil lookup values with the exception of copper and zinc which were detected above the soil RAGs for protection of the Columbia River. However, based on RESRAD modeling discussed in Appendix C of the 100-N Area RDR/RAWP (DOE-RL 2006b), residual concentrations of copper and zinc are not predicted to migrate more than 3 m (9.8 ft) in 1,000 years, based on copper, having the lowest partitioning coefficient, 22 mL/g. The vadose zone underlying the concrete monolith at the 1908-N outfall is approximately 4.4 m (14.5 ft) thick. Therefore, residual concentrations of copper and zinc are predicted to be protective of groundwater, and thus, the Columbia River.

Figure I. 1908-N Outfall - Monolith



Table 1. Inorganic Sample Summary Table.

Sample Number	Sample Date	Aluminum			Antimony			Arsenic			Barium			Beryllium			Boron		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1P170	4/26/12	7370		5	0.6	U	0.6	1.78		1	103		0.5	0.206		0.2	7.76		2

Sample Number	Sample Date	Cadmium			Calcium			Chromium			Cobalt			Copper			Hexavalent Chromium		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1P170	4/26/12	0.0783	B	0.2	76700		1200	10.2		0.2	5.58		2	22.4		1			
J1P171	4/26/12	NA															0.284		0.155

Sample Number	Sample Date	Iron			Lead			Magnesium			Manganese			Mercury			Molybdenum		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1P170	4/26/12	15000		20	2.56		0.5	3420		75	344		5	0.025	U	0.025	1.01	B	2

Sample Number	Sample Date	Nickel			Potassium			Selenium			Silicon			Silver			Sodium		
		mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
J1P170	4/26/12	5.96		4	1120		400	0.3	U	0.3	202		2	0.2	U	0.2	940		50

Sample Number	Sample Date	Vanadium			Zinc		
		mg/kg	Q	PQL	mg/kg	Q	PQL
J1P170	4/26/12	40.9		2.5	223		10

B = Detected below reporting limit  
 MDA = minimum detectable activity  
 NA = not analyzed  
 Q = qualifier  
 PQL = practical quantitation limit  
 U = undetected

Table 2. Radionuclide Sample Summary Table.

Sample Number	Sample Date	Americium-241 GEA			Bismuth-214 GEA			Cerium-144 GEA			Cesium-137 GEA			Cobalt-60 GEA			Europium-152 GEA		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1P170	4/26/12	0.029	U	0.029	0.331		0.052	0.106	U	0.106	0.024	U	0.024	0.022	U	0.022	0.061	U	0.061

Sample Number	Sample Date	Europium-154 GEA			Europium-155 GEA			Lead-212 GEA			Niobium-94 GEA			Potassium-40 GEA			Radium-226 GEA		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1P170	4/26/12	0.076	U	0.076	0.051	U	0.051	0.436		0.034	0.02	U	0.02	7.9		0.231	0.321		0.05

Sample Number	Sample Date	Radium-228 GEA			Thorium-228 GEA			Thorium-232 GEA			Uranium-235 GEA			Thorium-232 GEA			Uranium-235 GEA		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1P170	4/26/12	0.416		0.108	0.421		0.033	0.416		0.108	0.133	U	0.133	0.416		0.108	0.133	U	0.133

Sample Number	Sample Date	Uranium-238 GEA			Americium-241 AEA			Plutonium-238 AEA			Plutonium-239/240 AEA			Thorium-228 AEA			Thorium-230 AEA		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1P170	4/26/12	2.88	U	2.88	-0.05	U	0.477	0	U	0.366	-0.048	U	0.366	0.147	U	0.282	0.147	U	0.6

Sample Number	Sample Date	Thorium-232 AEA			Uranium-233/234 AEA			Uranium-235 AEA			Uranium-238 AEA			Total Beta Radiostrontium			Carbon-14		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1P170	4/26/12	0.294		0.225	0.343		0.202	0.128	U	0.244	0.343		0.202	-0.074	U	0.318	-0.779	U	2.85

Sample Number	Sample Date	Nickel-63			Plutonium-241			Tritium		
		pCi/g	Q	MDA	pCi/g	Q	MDA	pCi/g	Q	MDA
J1P170	4/26/12	-1.67	U	3	6.28	U	14.2	1.28	U	6.08

**Table 3. Comparison of the Concrete Sample Concentrations to Soil Action Levels.**

COPC	Result (pCi/g) <sup>a</sup>	Soil Lookup Values (pCi/g) <sup>a</sup>			Does the Result Exceed Lookup Values?
		Shallow Zone Lookup Value	Soil Lookup Value for Groundwater Protection	Soil Lookup Value for River Protection	
Uranium-234	0.343 (<BG)	1.1 <sup>b</sup>	1.1 <sup>b</sup>	1.1 <sup>b</sup>	No
Uranium-238	0.343 (<BG)	1.1 <sup>b</sup>	1.1 <sup>b</sup>	1.1 <sup>b</sup>	No
COPC	Result (mg/kg)	Soil Cleanup Levels (mg/kg) <sup>a</sup>			Does the Result Exceed RAGs?
		Direct Exposure	Protective of Groundwater	Protective of the River	
Arsenic	1.78 (<BG)	20 <sup>b</sup>	20 <sup>b</sup>	20 <sup>b</sup>	No
Barium	103 (<BG)	5,600	200	400	No
Beryllium	0.206 (<BG)	10.4 <sup>d</sup>	1.51 <sup>b</sup>	1.51 <sup>b</sup>	No
Boron <sup>e</sup>	7.76	7,200	320	-- <sup>f</sup>	No
Cadmium <sup>e</sup>	0.0783 (<BG)	13.9 <sup>d</sup>	0.81 <sup>b</sup>	0.81 <sup>b</sup>	No
Chromium, total	10.2 (<BG)	80,000	18.5 <sup>b</sup>	18.5 <sup>b</sup>	No
Hexavalent chromium <sup>e</sup>	0.284	2.1 <sup>d</sup>	4.8	2	No
Cobalt	5.58 (<BG)	24	15.7 <sup>b</sup>	-- <sup>f</sup>	No
Copper	22.4	2,960	59.2	22.0 <sup>b</sup>	Yes <sup>g</sup>
Lead	2.56 (<BG)	353	10.2 <sup>b</sup>	10.2 <sup>b</sup>	No
Manganese	344 (<BG)	3,760	512 <sup>b</sup>	512 <sup>b</sup>	No
Molybdenum <sup>e</sup>	1.01	400	8	-- <sup>f</sup>	No
Nickel	5.96 (<BG)	1,600	19.1 <sup>b</sup>	27.4	No
Vanadium	40.9 (<BG)	560	85.1 <sup>b</sup>	-- <sup>f</sup>	No
Zinc	223	24,000	480	67.8 <sup>b</sup>	Yes <sup>g</sup>

<sup>a</sup> Lookup values and RAGs obtained from the 100 Area RDR/RAWP (DOE-RL 2006b) unless otherwise noted.

<sup>b</sup> Where cleanup levels are less than background, cleanup levels default to background per WAC 173-340-700[4][d] (1996). The arsenic cleanup level of 20 mg/kg has been agreed to by the Tri-Party Agreement Project managers (DOE-RL 2006b).

<sup>c</sup> Hanford Site-specific background value is not available; it was not evaluated during background study. Value used is from *Natural Background Soil Metals Concentrations in Washington State* (Ecology 1994).

<sup>d</sup> Carcinogenic cleanup level calculated based on the inhalation exposure pathway (WAC 173-340-750[3], 1996) using an airborne particulate mass-loading rate of 0.0001 g/m<sup>3</sup> (*Hanford Guidance for Radiological Cleanup* [WDOH 1997]).

<sup>e</sup> No Hanford Site-specific or Washington State background value is available.

<sup>f</sup> No parameters (bioconcentration factors or ambient water quality criteria values) are available from the Washington State Department of Ecology Cleanup Levels and Risk Calculations database or other databases to calculate cleanup levels (WAC 173-340-730[3](a)(iii), 1996 [Method B for surface waters]).

<sup>g</sup> Because the soil partitioning coefficient values for copper and zinc are greater than 20 mL/g (22 mL/g and 30 mL/g, respectively), RESRAD modeling discussed in Appendix C of the 100-N Area RDR/RAWP (DOE-RL 2006b) predicts that these constituents will not reach groundwater within 1,000 years. The vadose zone underlying the concrete monolith at the 1908-N outfall is approximately 4.4 m (14.5 ft). Based on RESRAD modeling, constituents with a soil partitioning coefficient of 16 mL/g or greater are not predicted to migrate through a vadose zone of this thickness and reach groundwater within 1,000 years. Therefore, residual concentrations of copper and zinc are predicted to be protective of groundwater and the Columbia River.

-- = not applicable

BG = background

COPC = contaminant of potential concern

EPA = U.S. Environmental Protection Agency

RAG = remedial action goal

RDL = required detection limit

RDR/RAWP = Remedial Design Report/Remedial Action Work Plan for the 100 Area

RESRAD = RESidual RADioactivity (dose assessment model)

WAC = Washington Administrative Code

## References

DOE-RL, 2006a, *100-N Area Remedial Action Sampling and Analysis Plan for CERCLA Waste Sites*, DOE/RL-2005-92, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

- DOE-RL, 2006b, *Remedial Design Report/Remedial Action Work Plan for the 100-N Area*, DOE/RL-2005-93, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE-RL, 2012, *Removal Action Work Plan for 100-N Area Ancillary Facilities*, DOE/RL-2002-70, Rev. 3, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Ecology, 1994, *Natural Background Soil Metals Concentrations in Washington State*, Publication No. 94-115, Washington State Department of Ecology, Olympia, Washington.
- Ecology, 2011, *Cleanup Levels and Risk Calculations (CLARC) Database*, Washington State Department of Ecology, Olympia, Washington, <<https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>>.
- ENV-1, *Environmental Monitoring & Management*, Washington Closure Hanford, Richland, Washington.
- EPA, 1989, *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A)*, Interim Final, EPA/540/1-89/002, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C.
- WAC 173-340, 1996, "Model Toxics Control Act -- Cleanup," *Washington Administrative Code*.
- WDOH, 1997, *Hanford Guidance for Radiological Cleanup*, WDOH/320-015, Rev. 1, Washington State Department of Health, Olympia, Washington.

100-N D4 Project Facility Completion Form

**Attachment 6. Ecology Approval to leave a small section of the 1908-N wall stuck in the below grade corner of the monolith CCN 165189 (7 Pages)**

**^WCH Document Control**

**From:** McCurley, Clay D  
**Sent:** Wednesday, May 30, 2012 4:11 PM  
**To:** ^WCH Document Control  
**Cc:** Trevino, Ruben A; Flannery, Michael (Mike) D; Bigby, Daniel A  
**Subject:** 1908-N Ecology Approval to Leave Stubborn Concrete

**Attachments:** ESRFRM120085C.pdf; 1908-N on 05-30-12a.jpg; 1908-N on 05-30-12b.jpg; 1908-N on 05-30-12j.jpg; Monolith Photos on 05-23-2012.doc

Folks. Please print the attachments and chron with this email message as Ecology's approval to leave a small portion of the 1908-N wall stuck in a below grade corner of the monolith. Let me know the chron number selected. Thanks. Clay

**From:** Elliott, Wanda (ECY) [<mailto:wel461@ECY.WA.GOV>]  
**Sent:** Wednesday, May 30, 2012 3:44 PM  
**To:** McCurley, Clay D  
**Cc:** Boyd, Alicia; Warren, David J; Guercia, Rudolph F  
**Subject:** RE: 1908-N Stubborn Concrete

**We concur with leaving the stubborn concrete in place.**

**Wanda Elliott**  
**(509) 372-7904**  
**Environmental Scientist**  
**Nuclear Waste Program**  
**Washington State Department of Ecology**

**From:** McCurley, Clay D [<mailto:cdmccurl@wch-rcc.com>]  
**Sent:** Wednesday, May 30, 2012 3:08 PM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Boyd, Alicia (ECY); Warren, David J; Guercia, Rudolph F  
**Subject:** RE: 1908-N Stubborn Concrete

Wanda. Successfully got GPERS performed on the 1908-N this morning. They used their cart and were able to safely cover much more of the structure than I had anticipated. Attached is the report. Nothing exceeded 1.5 times background. I've also attached some action photos of the survey. While I was there this morning, I did not observe any stains or anomalies on or around the monolith. Looks pretty clean to me. We're still requesting Ecology concurrence with leaving the stubborn concrete stuck in the corner of the below grade monolith. Let me know what you think.

Thanks. Clay



ESRFRM120085C.p  
df (708 KB)



1908-N on  
i-30-12a.jpg (518 K)



1908-N on



1908-N on  
K5-30-12j.jpg (415 K)

**From:** Elliott, Wanda (ECY) [<mailto:wel461@ECY.WA.GOV>]  
**Sent:** Tuesday, May 29, 2012 8:33 AM  
**To:** McCurley, Clay D  
**Subject:** RE: 1908-N Stubborn Concrete

**Is there any new status on this subject?**

**Wanda Elliott**  
**(509) 372-7904**  
**Environmental Scientist**  
**Nuclear Waste Program**  
**Washington State Department of Ecology**

---

**From:** McCurley, Clay D [<mailto:cdmccurl@wch-rcc.com>]  
**Sent:** Thursday, May 24, 2012 1:42 PM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Boyd, Alicia (ECY); Warren, David J; Guercia, Rudolph F  
**Subject:** 1908-N Stubborn Concrete

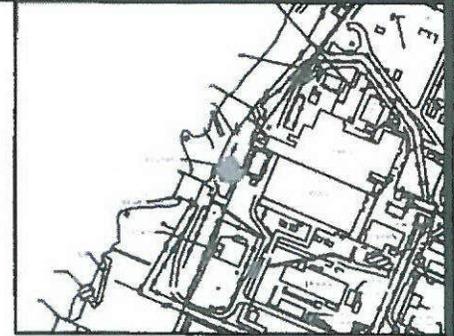
Wanda. We are almost complete with the demolition and load out of the 1908-N Reactor Outfall structure but we're having difficulty with a small portion of the wall near the bottom northeast corner. If you open the attachment and zoom to 200% you'll see the last remaining bit of the below grade wall and rebar stuck in the monolith's northeast corner. Note: The rebar and concrete you see in the foreground is loose and will be removed.

We cannot get our hammer positioned at a good angle to scabble this last stubborn portion of the wall and rebar. We have successfully scabbled away the all surface areas that came into contact with outfall water in the past but the rest is firmly stuck in the corner. In accordance with requirement our Ancillary Facilities RAWP (DOE/RL-2002-70, Rev. 3) we are requesting Ecology's approval to leave this small amount of stubborn concrete in place.

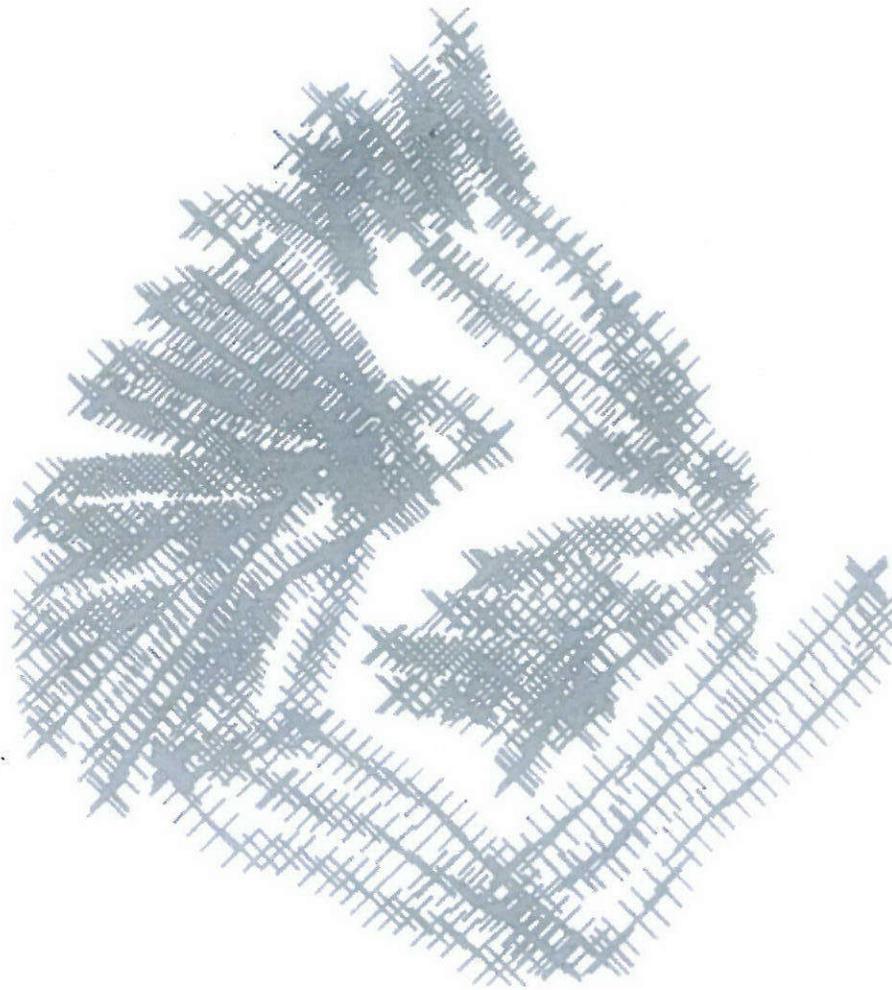
Please contact me if you need more information or if you would like to visit and view the issue. Thanks. Clay



Monolith Photos on  
05-23-2012....



Site View



Bkg Location  
767 meters SE  
1204 cpm

Copy

Legend

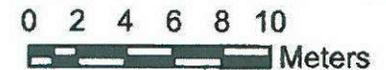
- NET CPM
- X <1806
  - 1806 - 5000
  - 5000 - 10000
  - 10000 - 25000
  - 25000

Summary Statistics

Coverage File: N151  
Number of Data Pnts: 1373  
Type of Survey: gamma  
Max GCPM: 2187  
Avg Bkg CPM: 1204  
Survey Date: 5/30/2012  
Area Surveyed: 883 m<sup>2</sup>  
Project File: ESRFRM120085  
Pdf File: ESRFRM120085C

100N D4  
1908-N

GPERS Radiological Survey  
Gamma Track Map



Survey Map Prepared By Bruce Coomer, ESI







**1908-N Lean Concrete Monolith**  
May 23, 2012



View of monolith below grade (facing east).



View of monolith below grade (facing north).

100-N D4 Project Facility Completion Form

**Attachment 7. Sampling Determination Form for the 1908-N Facility (SDF-100N-027) (5 Pages)**

## 100-N ANCILLARY FACILITIES REMOVAL ACTION SAMPLING DETERMINATION FORM

Determination Number  
SDF-100N-027

### A. INSTRUCTIONS

*This form must be completed to: 1) document existing data in order to determine if current data is suitable to prove completion of 100-N Ancillary Facilities, or 2) document that site-specific sampling and analyses are needed to provide completion for 100-N Ancillary Facilities.*

### B. GENERAL INFORMATION

Building Name: Seal Well (Outfall) Building Number: 1908-N (WIDS Site 1908-N)

WIDS Sites Associated or Adjacent:  
100-N-61:1, 100-N-61:3, 100-N-77, 100-N-79, 100-N-84:2, and 1908-N

- All WIDS sites listed above are classified as Accepted-

#### Other:

The 1908-N facility was a concrete-reinforced weir box that received raw cooling water. Facility effluent discharged to the Columbia River via a pipeline and a spillway (DOE/RL-90-22 pg. 2-58 & WIDS General Summary Reports for 100-N-77, 100-N-79, and 1908-N). The footprints of the effluent pipeline and spillway have been incorporated into respective WIDS sites 100-N-77 and 100-N-79 (WIDS General Summary Report for 100-N-77 & 100-N-79).

The Field Remediation organization (FR) will be responsible for the closeout of the 1908-N facility footprint, which is WIDS site 1908-N.

### C. INFORMATION SOURCES

Available information (list document number for each if applicable):

Historical Site Assessment: N/A

Site Walkdown: Ecology's Approval to Leave a Small Portion of the 1908-N Wall Stuck in a Below Grade Corner of the Monolith: CCN 165819

IH Characterization Report: N/A

Radiological Survey: Global Positioning Environmental Radiological Surveyor (GPERS): ESR-FRM-120085C (results included in CCN 168519)

IHC/FHC Document: N/A

WIDS/SIS: • Waste Information Data System (WIDS) General Summary Report for 100-N-77, 100-N-79, and 1908-N  
• RCC Stewardship Information System (SIS) Site Summary Report for 1908-N

PDSR: N/A

Facility Inspection: 100 Area River Effluent Pipeline Site Visit Notes: CCN 112489

Waste Characterization Checklist: N/A

Summary Report: N/A

#### Other:

- 100N Facility Endpoint Criteria and Turnover Documentation 1908-N Seal Well: CCN 521171
- 1908-N Approval to Leave Concrete Monolith: CCN 166186
- Asbestos Inspection & Sampling Report for the 181-NE and 1908 N: CCN 128835
- Engineering Evaluation/Cost Analysis for the 100-N Area Ancillary Facilities and Integration Plan, Rev. 1: DOE/RL-97-22
- Explanation of Significant Differences for the 100-NR-1 and 100-NR-2 Operable Units Interim Remedial Action Record of Decision, March 2011
- RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-NR-1 Operable Unit, Rev. 0: DOE/RL-90-22
- "Pre-Existing" Conditions Survey of Hanford Site Facilities Phase II, Rev. 0: BHI-00221
- Radiological Survey Record: RSR-100N-10-2229
- Photographs of the 1908-N Facility Pre-Demolition, Time-Stamped: SIS Site Summary Report for 1908-N pg. 7 (11/8/1961) & pg. 8 (2/7/2005), CCN 112489 pgs. 12-13 (2/7/2005)
- Photographs of the 1908-N Facility Pre-Demolition, No Time Stamp: SIS Site Summary Report for 1908-N pgs. 4-6
- Photographs of the 1908-N Facility Post-Demolition, No Time Stamp: CCN 168519 pgs. 4-7 & CCN 166186 pg. 5

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### D. HAZARDOUS SUBSTANCES

Check all that apply:

 None   
  Asbestos containing material   
  Lead   
  PCBs/PCB Articles   
  Oils/Greases

 Chemicals    List: \_\_\_\_\_

 Radiological Contamination   
 Mercury/Mercury Devices

 Other: \_\_\_\_\_

References/Comments:

There is no record of any hazardous substance having been located within the 1908-N facility.

Asbestos containing material: No potential asbestos containing material was identified during the asbestos inspection at the 1908-N facility (CCN 128835 pg. 1).

Liquids:  Yes     No

If yes, describe source and nature of liquids:

The 1908-N facility received water that had been used to cool the secondary cooling loop of the circulating raw water system (WIDS General Summary Reports for 1908-N). The water was not radiologically contaminated and contained no hazardous substances. It is reported that the facility received more than 2 million cubic meters of raw water daily (WIDS General Summary Report for 1908-N pg. 1). Prior to 1999 the facility was registered as Outfall 009, a National Pollutant Discharge Elimination System point source to allow discharge to the Columbia River via an effluent pipeline and a spillway (WIDS General Summary Reports for 100-N-77, 100-N-79, and 1908-N pg. 1).

 Were the hazardous substances removed from the facility prior to demolition?   
 Yes   
 No

As verified by what documentation:

As detailed elsewhere in Part D of this form, there were no hazardous substances to remove from the 1908-N facility.

 Was there potential for hazardous substances to be introduced into the soils during facility operations or demolition?   
 Yes   
 No   
 N/A

References/Comments:

There is no indication that any hazardous substance was located within the 1908-N facility during its operation. Furthermore, there is no indication that any hazardous substance was released into either the facility or the underlying soil during demolition.

List any hazardous materials left in the building for demolition:

N/A

Does review of historical records and process knowledge indicate a potential for radiological or chemical contamination to be present in the facility?

The 1908-N facility footprint has been classified as WIDS site 1908-N. However, neither historical records nor process knowledge indicate potential for either radiological or chemical contamination to be present within the facility footprint.

Radioactive contamination was expected to be present within the facility as a result of the facility's association with the secondary cooling loop system of the 105-N/109-N reactor (DOE/RL-97-22 pgs. 2-15 & 2-26). However, multiple pages in the 1908-N facility turnover documentation state that the facility did not contain radiological contamination (CCN 521171 pgs. 11, 16, and 58). Health physics radiological readings were reported to have historically been 80 times the background level at the facility, but documentation addressing these elevated readings was amended to remove radiological contamination as a point of concern for the 1908-N facility prior to facility turnover to Bechtel Hanford, Inc. (BHI-00221 pg. 3-118 & CCN 521171 pg. 8).

Radiological surveys at the location of the 1908-N facility did not identify radiological contamination (RSR-100N-10-2229 & ESR-FRM-120085C). Based on process knowledge the facility did not receive any chemical with contamination potential.

Comments:

N/A

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### FIELD OBSERVATIONS

#### Visual Inspection

Were any stained soils/anomalies discovered during or after demolition of the facility?  Yes  No

**References/Comments:**

A concrete monolith was discovered during demolition of the below grade of the 1908-N and was left within the facility footprint following facility demolition (CCN 166186 pg. 2 & CCN 165819 pg. 2). A sample of the concrete was analyzed and it was subsequently determined that the monolith did not contain any contaminant in sufficient concentration to threaten the groundwater or the Columbia River (CCN 166186 pgs. 2-7). As a result of this analysis and determination, the Washington State Department of Ecology provided approval of leaving the monolith in place (CCN 166186 pg. 2 & CCN 165819 pg. 1).

Pertinent design drawings include H-1-30573, Rev. 5 and H-1-45007, Sheet 31.

No other stained soils or anomalies were discovered within the 1908-N facility footprint (CCN 168519 pg. 1).

Were samples taken of the stained soils/anomalies?  Yes  No  N/A

**References/Comments:**

Sample (HEIS) Numbers J1P170 & J1P171

Do results of the samples indicate that chemical contamination exists?  Yes  No  N/A

**References/Comments:**

A sample of the concrete was analyzed and it was subsequently determined that the monolith did not contain any contaminant in sufficient concentration to threaten the groundwater or the Columbia River (CCN 166186 pgs. 2-7).

Is the area potentially a discovery site?  Yes  No

**References/Comments:**

N/A

#### Radiological Surveys

Did radiological surveys (GPERS or equivalent) identify contamination?  Yes  No

**References/Comments:**

ESR-FRM-120085C (GPERS) & RSR-100N-10-2229 (Routine Work Progress Survey)

Were samples taken of the radiologically contaminated soils?  Yes  No  N/A

**References/Comments:**

This question is not applicable because radiological contamination was not discovered within the 1908-N facility footprint.

Is the area potentially a discovery site?  Yes  No

**References/Comments:**

Radiological contamination was not discovered within the facility footprint.

Were the contaminated materials removed?  Yes  No  N/A

**References/Comments:**

This question is not applicable because radiological contamination was not discovered within the facility footprint.

#### WIDS SITES

Were there any WIDS sites affected by D4 activities?  Yes  No

If yes, list the WIDS sites:

1908-N

Were the WIDS site(s) completely removed?  Yes  No

**References/Comments:**

With the removal of the 1908-N facility, the 1908-N WIDS site was also removed because there is no indication that any portion of the facility or underlying soil was ever contaminated. The facility footprint is included as WIDS site 1908-N in the March 2011 Explanation of Significant Differences for the 100-NR-1 and 100-NR-2 Operable Units Interim Remedial Action Record of Decision (pg. 18). Accordingly, FR is responsible for final closeout of the facility footprint, for which

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deferral will not be necessary. The analytical results of the sample taken from the residual concrete monolith will be sufficient to support closeout of the 1908-N WIDS site. See Part D and Part G of this form for sample details.

Will the Ancillary Facility Footprint be deferred to FR to be closed out with a co-located Waste Site?  Yes  No

References/Comments:  
N/A

### G. GOALS FOR SOILS AND STRUCTURES REMAINING AFTER DEMOLITION

What are the potential contaminants of concern for the remaining below-grade soil?

None  SVOC  VOC  Metals  TPH  Rad  PCBs

Other (Specify): \_\_\_\_\_

Comments:

There is no record of any hazardous substance having been located within the 1908-N facility.

Summary of in-process soil sampling requirements:

N/A

Constituents detected / concentrations / rationale  
Consult Sample Collection Summary below

### Sample Collection Summary

Concrete monolith at 1908-N: Sample (HEIS) Numbers J1P170 & J1P171

-Analysis results are detailed in CCN 166186 pgs. 4-7.

The analysis results indicate that no contaminant was present in sufficient concentration to threaten the groundwater or the Columbia River.

### H. NOTES / ADDITIONAL INFORMATION

Check here if additional information / data / maps / sketches are attached to this form.

If checked, list the attachment(s):

N/A

### I. SAMPLING

Are soil samples required to demonstrate that remaining structure or below-grade soils meet cleanup standards?  Yes  No

Based on the above information it was determined that sampling:  will  will not be required in order to demonstrate that cleanup criteria have been met.

The individual below acknowledges that the review of this facility has been completed. He or she also commits to provide to the Department of Energy (DOE) and the Washington State Department of Ecology (Ecology) any available information that could alter the sampling decision established in this form.

Information Reviewer Signature

*David Warren*

Printed Name

David Warren

Date

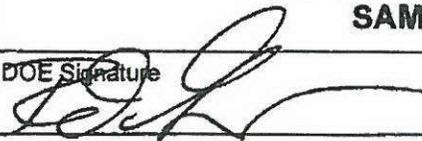
6-28-12

The regulatory representative below agrees with the decision outlined in section I of this form for the indicated facility and supports implementation of that decision based on the information currently available.

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DOE Signature



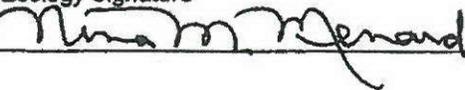
Printed Name

RF Guerent

Date

6/28/12

Ecology Signature



Printed Name

NINA M. Menard

Date

7/2/12