

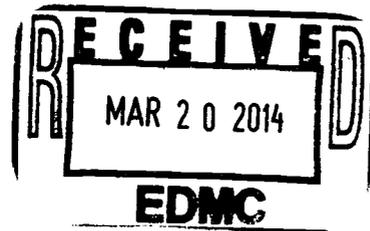
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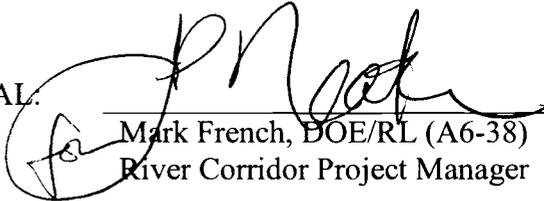
## 100/300 AREA UNIT MANAGER MEETING ATTENDANCE AND DISTRIBUTION

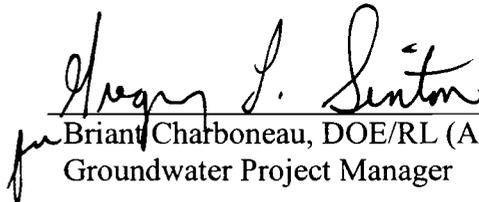
NAME	E-MAIL ADDRESS	MSIN	COMP
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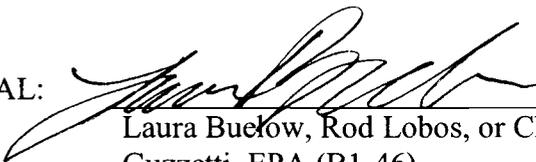
100/300 AREA UNIT MANAGERS MEETING  
APPROVAL OF MEETING MINUTES

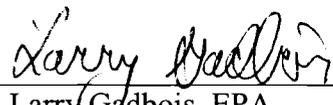
February 13, 2014

APPROVAL:  Date 3/13/14  
Mark French, DOE/RL (A6-38)  
River Corridor Project Manager

APPROVAL:  Date 3.13.14  
Brian Charboneau, DOE/RL (A6-33)  
Groundwater Project Manager

APPROVAL:  Date 3/17/14  
Nina Menard, Ecology (H0-57)  
Environmental Restoration Project  
Manager

APPROVAL:  Date 3.13.14  
Laura Buelow, Rod Lobos, or Christopher  
Guzzetti, EPA (B1-46)  
100 Area Project Manager

APPROVAL:  Date March 13, 2014  
Larry Gadbois, EPA  
(B1-46)  
300 Area Project Manager

## 100 & 300 AREA UNIT MANAGER MEETING MINUTES

Groundwater and Source Operable Units; Facility Deactivation, Decontamination, Decommission, and Demolition (D4); Interim Safe Storage (ISS); Field Remediation (FR); Mission Completion; and 100-K Sludge Treatment Project and 100-K Facility Demolition and Soil Remediation Projects

February 13, 2014

### ADMINISTRATIVE

- Next Unit Manager Meeting (UMM) – The next meeting will be held March 13, 2014, at the Washington Closure Hanford (WCH) Office Building, 2620 Fermi Avenue, Room C209.
- Attendees/Delegations – Attachment A is the list of attendees. Representatives from each agency were present to conduct the business of the UMM.
- Approval of Minutes – The January 9, 2014, meeting minutes were approved by the U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and U.S. Department of Energy, Richland Operations Office (RL).
- Action Item Status – The status of action items was reviewed and updates were provided (see Attachment B).
- Agenda – Attachment C is the meeting agenda.

### EXECUTIVE SESSION (Tri-Parties Only)

An Executive Session was not held by RL, EPA, and Ecology prior to the February 13, 2014, UMM.

### PRESENTATION ON THE ANNUAL GROUNDWATER REPORT

A presentation on the annual groundwater report using Phoenix software was conducted by Craig Arola at 1:30 p.m. prior to the regular session.

### 100-K AREA (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 2 provides status and information for Field Remediation activities. Attachment 3 provides a schedule for Field Remediation at the 100-K Area. Attachment 4 provides a status of the 100-K Sludge Treatment Project and the 100-K Facility Demolition and Soil Remediation projects. No issues were identified and no action items were documented.

Agreement 1: Attachment 5 provides EPA's approval to conduct revegetation activities at 100-C-7:1 and select 100-K and IU waste sites in February and possibly into March 2014.

### 100-B/C AREA (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 2 provides status and information for Field Remediation activities. Attachment 6 provides a schedule for Field Remediation at 100-B/C Area. Attachment 7 provides status and information for D4/ISS activities at 100-N and 100-B. No issues were identified and no action items were documented.

Agreement 1: Attachment 8 provides EPA's approval to conduct revegetation activities at 100-C-7:1 and select 100-K and IU waste sites in February and possibly into March 2014.

## **100-N AREA (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides status and information for groundwater. Attachment 2 provides status and information for Field Remediation activities. Attachment 7 provides status and information for D4/ISS activities at 100-N and 100-B. Attachment 9 provides the 100-N Area FR Schedule. Attachment 10 provides a chart showing biovent well sample results for 199-N-171 and 199-N-169. No issues were identified and no action items were documented.

Agreement 1: Attachment 11 provides EPA's approval to ship seven 55-gallon drums of bunker oil (approximately 285 gallons), one 3.5 gallon poly container that holds "Eppley Standard Cell," and two 110-gallon drums of unleaded gasoline contaminated soil offsite to Burlington Environmental, LLC, in Kent, WA for treatment and disposal (extended prior approval through April 4, 2014).

Agreement 2: Attachment 12 provides DOE's and Ecology's concurrences to sample and immediately backfill selected portions of the 100-N-84 pipeline segments that are needed to maintain access to active remediation areas or have utility interferences that may necessitate immediate backfill after removal of the subject pipeline.

Agreement 3: Attachment 13 provides DOE's and Ecology's concurrences of a conceptual characterization plan, decisional flowchart, and in-situ bioremediation design for the 100-N-85 waste site.

Agreement 4: Attachment 14 provides DOE's and Ecology's concurrences to administratively move the TPH contamination within 100-N-84:2, Sample Area 3, to the UPR-100-N-17 site to allow for easier integration with future design efforts for the deeper diesel contamination at that site.

Agreement 5: Attachment 15 provides Ecology's concurrence to start backfilling some of the deep zone sites at 100-N.

Agreement 6: Attachment 16 provides DOE's and Ecology's concurrences to backfill 100-N-84-N pipeline segments.

Agreement 7: Attachment 17 provides DOE's and Ecology's concurrences for additional sampling and remediation and resampling of the 100-N-54 site which failed direct exposure remedial action goals for benzo(a)anthracene, benzo(a)pyrene, and/or benzo(b)fluoranthrene.

## **100-D & 100-H AREAS (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides status and information for groundwater. Attachment 2 provides status and information for Field Remediation activities. Attachment 18 provides the Field Remediation Schedule for 100-D and 100-H. No issues were identified and no action items were documented.

Agreement 1: Attachment 19 provides the Facility Status Change Form for the 151D Primary Electrical Substation.

Agreement 2: Attachment 20 provides Ecology's concurrence to continue revegetation activities at 100-D-50:1 through February 21, 2014.

Agreement 3: Attachment 21 provides Ecology's concurrence for extending by one year the approval of the 100-D container storage area, until February 20, 2015.

Agreement 4: Attachment 22 provides Ecology's concurrence that the addition of the ISRM pond does not invalidate the assumptions that were the basis for shutting down the air monitors at 100-D based on the remaining inventory in scope being below 0.1 mrem/yr.

Agreement 5: Attachment 23 provides Ecology's approval to continue revegetation activities at 100-D-50:1 in February 2014.

Agreement 6: Attachment 24 provides DOE's and Ecology's approvals of the characterization strategy/path forward for the northeast wall of the 100-D-100 excavation.

Agreement 7: Attachment 25 provides EPA's concurrence to remove a small piece of pipe (less than 20 feet containing a small amount of asbestos pipe surrounding a metal steam line) in one piece as allowed by 40 CFR 61.145 (c)(2), keeping it adequately wet during the disjoining operation.

Agreement 8: Attachment 26 provides Ecology's approval of proposed sample locations for 100-D-100.

### **100-F & 100-IU-2/100-IU-6 AREAS (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides status and information for groundwater. Attachment 2 provides status and information for Field Remediation activities. Attachment 27 provides the Field Remediation Schedule for IU-2/6. No issues were identified and no agreements or action items were documented.

### **300 AREA – 618-10/11 (GROUNDWATER, SOILS)**

Attachment 1 provides status and information for groundwater. Attachment 2 provides status and information for Field Remediation activities. No issues were identified and no agreements or action items were documented.

### **300 AREA - GENERAL (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides status and information for groundwater. Attachment 28 provides status of the 300 Area Closure Project activities. No issues were identified and no action items were documented.

Agreement 1: Attachment 29 provides Tri-Party Agreement (TPA) Change Notice (CN) number TPA-CN-609 revising DOE/RL-2009-30, Rev. 0, 300 Area Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units, to indicate that the quarterly groundwater sampling of remedial investigation wells in the 300 Area has been completed and no further groundwater sampling will be conducted in this work plan.

Agreement 2: Attachment 30 provides Tri-Party Agreement (TPA) Change Notice (CN) number TPA-CN-610 revising DOE/RL-2009-45, Rev. 0, 300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units, to indicate that the quarterly groundwater sampling of remedial investigation wells in the 300 Area has been completed and no further groundwater sampling will be conducted under this SAP.

Agreement 3: Attachment 31 provides Tri-Party Agreement (TPA) Change Notice (CN) number TPA-CN-611 revising DOE/RL-2002-11, Rev. 2, 300-FF-5 Operable Unit Sampling and Analysis Plan, to update the well list for groundwater sampling and analysis, and to revise the analytes for well sampling in the 300-FF-5 Operable Unit.

Agreement 4: Attachment 32 provides Tri-Party Agreement (TPA) Change Notice (CN) number TPA-CN-612 revising DOE/RL-2000-59, Rev. 1, Sampling and Analysis Plan for Aquifer Sampling Tubes, to reduce sampling frequency and analytes for 300-FF-5 aquifer tubes.

### **MISSION COMPLETION PROJECT**

Attachment 33 provides status and information regarding the Long-Term Stewardship, the 300 Area Final Action ROD RDR/RAWP, and a Document Review Look-Ahead. No issues were identified and no agreements or action items were documented.

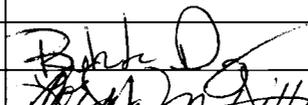
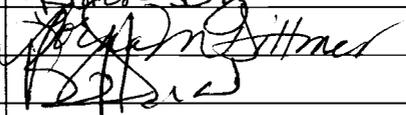
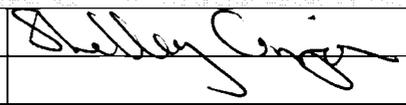
# Attachment A

100/300 AREA UNIT MANAGER MEETING

ATTENDANCE AND DISTRIBUTION

February 13, 2014

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# Attachment B

100/300 Area UMM  
Action List  
February 13, 2014

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
O	100-198	RL	M. Thompson	100-N	DOE will sample the C7935 and C7936 aquifer tubes at 100-N Area in August 2013. If the sample results are high or inclining, or if the sample results are not available, the samples will be repeated in September 2013.	Open: 5/9/13; Action:

# Attachment C

100/300 Area Unit Manager Meeting  
February 13, 2014  
Washington Closure Hanford Building  
2620 Fermi Avenue, Richland, WA 99354  
Room C209; 2:00p.m.

**NOTE: At 1:30 p.m., prior to the UMM, for those who are interested, CHPRC will provide a demonstration of the web-based Groundwater Annual Report**

**Administrative:**

- Approval and signing of previous meeting minutes (January 9, 2014)
- Update to Action Items List
- Next UMM (3/13/2014, Room C209)

**Open Session: Project Area Updates - Groundwater, Field Remediation, D4/ISS:**

- 100-K Area (Jim Hanson, Ellwood Glossbrenner, Roger Quintero)
- 100-B/C Area (Greg Sinton, Tom Post)
- 100-N Area (Joanne Chance, Rudy Guercia, Mike Thompson)
- 100-D & 100-H Areas (Jim Hanson, Tom Post, Elwood Glossbrenner)
- 100-F & 100-IU-2/6 Areas (Greg Sinton, Tom Post, Ellwood Glossbrenner)
- 300 Area - 618-10/11 exclusively (Jamie Zeisloft)
- 300 Area (Mike Thompson/Rudy Guercia)
- Mission Completion Project (Jamie Zeisloft)

**Special Topics/Other**

**Adjourn**

# Attachment 1

**100/300 Areas Unit Managers Meeting  
February 13, 2014**

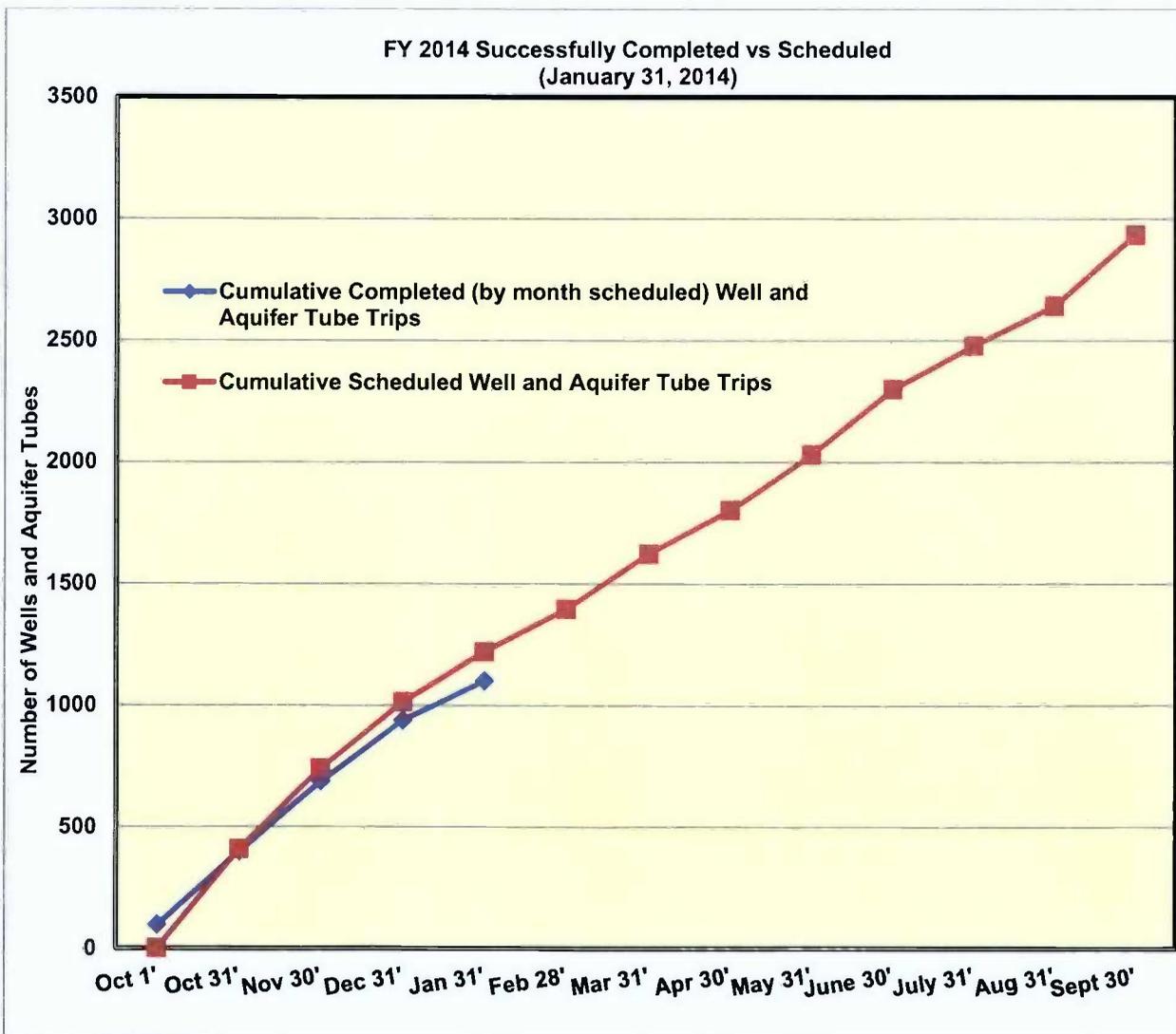
**General information on Remedy Selection & Implementation**

Hanford's overall Site groundwater monitoring program (river corridor and central plateau) for 2014 has 2,933 samples scheduled for collection.

For January 2014 (month four) the River Corridor portion of the program successfully completed 158 groundwater sampling trips of the 207 scheduled, plus 195 trips scheduled for October to December. This brings the total number of successful sample trips to 1,100 which were scheduled from October to January and total count of 1,220. In addition, 17 sample trips scheduled for February were completed in January (ahead of plan) and 2 trips from prior months FY2013 were completed making the January total successful trips of 372.

The specific wells, aquifer tubes and spring sampled in the river corridor areas during January 2014 are listed in Table 1. Table 2 presents the samples for the river corridor only that were not successfully completed in January. Sample trips scheduled for collection in February 2014 are listed in Table 3.

The sampling results are available in HEIS and can be accessed from the Environmental Dashboard Application which can be accessed from the HLAN at <http://\environet.rl.gov\eda> or from the internet at <http://\environet.hanford.gov\eda>.



**100/300 Areas Unit Managers Meeting  
February 13, 2014**

**100-KR-4 Groundwater Operable Unit – Bert Day/Chuck Miller/Randy Hermann**

- CERCLA Process Implementation
  - RI/FS and Proposed Plan: The documents are on hold pending 100-K East Reactor waste site characterization wells (116-KE-3 and UPR-100-K-1) and modeling. EPA has stipulated that these results are required to be incorporated into the RI/FS prior to Rev. 0 signatures.
  - RD/RAWP, Monitoring Plan, and Operations and Maintenance Plan: Conducting Decisional Draft review.
- Remedial Actions & System Modifications
  - Operations continue at KX, KR-4, and KW pump-and-treat systems. January 2014 performance:
    - The systems treated 49.36 million gallons.
    - The system removed 3.72 kg of hexavalent chromium.
  - Completed operational testing activities on 199-K-198 and 199-K-199 (KR4) and 199-K-181 (KX) in January 2014. All wells are operating unattended.
- Monitoring and Reporting
  - Well Installation
    - 199-K-205: Completed construction on January 29, 2014. Final development initiated on February 3, 2014.
    - 199-K-206: Completed drilling on October 9, 2013, awaiting rig availability (from 199-K-205) for well construction.

**100/300 Areas Unit Managers Meeting  
February 13, 2014**

**100-BC-5 Groundwater Operable Unit – Phil Burke/Mary Hartman**

(M-015-79 due 12/15/2016, Submit CERCLA RI/FS Report and Proposed Plan for the 100-BC-1, 100-BC-2 and 100-BC-5 Operable Units for groundwater and soil.)

- CERCLA Process Implementation:
  - Drilling of new wells continued in January. As of February 10, 2014, seven wells were complete and the last one was under construction.
- Monitoring & Reporting
  - Hyporheic sampling points (HSPs): January sampling included Cr(VI) grab samples from all 14 shallow HSPs, and high-frequency Cr(VI) sampling from 8 HSPs within the chromium plume. The January results were consistent with previous results. Figure BC-1 shows laboratory Cr(VI) results for three rounds of sampling. The next round of HSP sampling is planned to begin in mid-February.
  - Co-contaminant data from the December semiannual HSP sampling event were loaded into HEIS. The maximum tritium concentration was 6,300 pCi/L. Strontium-90 concentrations ranged from below detection limits to 7.2 pCi/L (C8843). The latter was higher than expected based on nearby wells and aquifer tubes and the sample is being reanalyzed.
  - Several 100-BC wells are on a quarterly monitoring schedule for the RI and were sampled in January. Figure BC-2 shows Cr(VI) trends in three of the wells. 199-B4-14 is downgradient of the former 100-C-7:1 waste site. Seasonal peaks in concentrations were evident in winter to spring for the past three years, but the peaks have declined each year. Cr(VI) concentration remained steady in 199-B4-7 in central 100-BC. Concentrations remained low in 199-B8-9, east of the 100-C-7 and C-7:1 waste sites.
  - Figure BC-3 illustrates vertical characterization data from three of the new boreholes. (a) Well 199-B5-9 (C8779) is closest to the former 100-C-7:1 site. Samples from near the top of the aquifer showed low, detectable levels of Cr(VI). Concentrations deeper in the aquifer were near or below detection limits. (note: a previously reported result of 16 µg/L at 166 ft bgs was found to be an error; the result was re-reported as <2 µg/L). Well 199-B5-9 was screened in the lower part of the aquifer and a shallow well was installed adjacent to it. (b) Well 199-B5-11 (C8781) is northeast of the former 100-C-7 site. Samples from this borehole showed elevated Cr(VI) near the water table and in the lower part of the aquifer, with lower concentrations in between. A shallow monitoring well is being installed adjacent to this well. (c) Well 199-B4-18 was drilled in central 100-BC where the heart of the Cr(VI) plume has migrated in recent years. Cr(VI) concentrations declined with depth at this location. The well was screened in the lower part of the aquifer and an existing adjacent well monitors the top of the aquifer. The other three deep boreholes in 100-BC encountered little or no Cr(VI) contamination.

**100/300 Areas Unit Managers Meeting  
February 13, 2014**

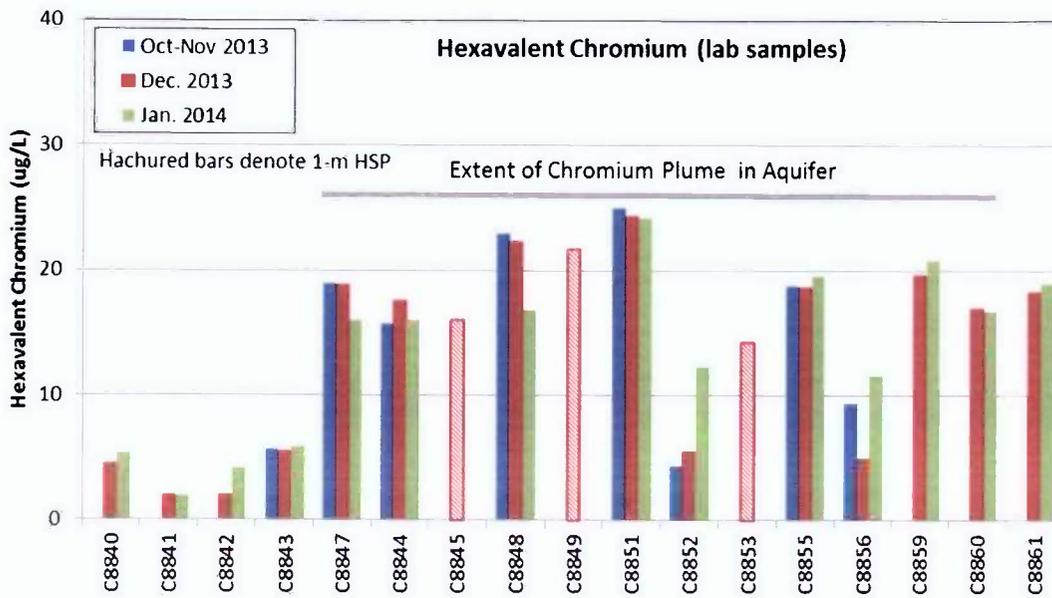


Figure BC-1. Hexavalent Chromium in 100-BC Hyporheic Sampling Points

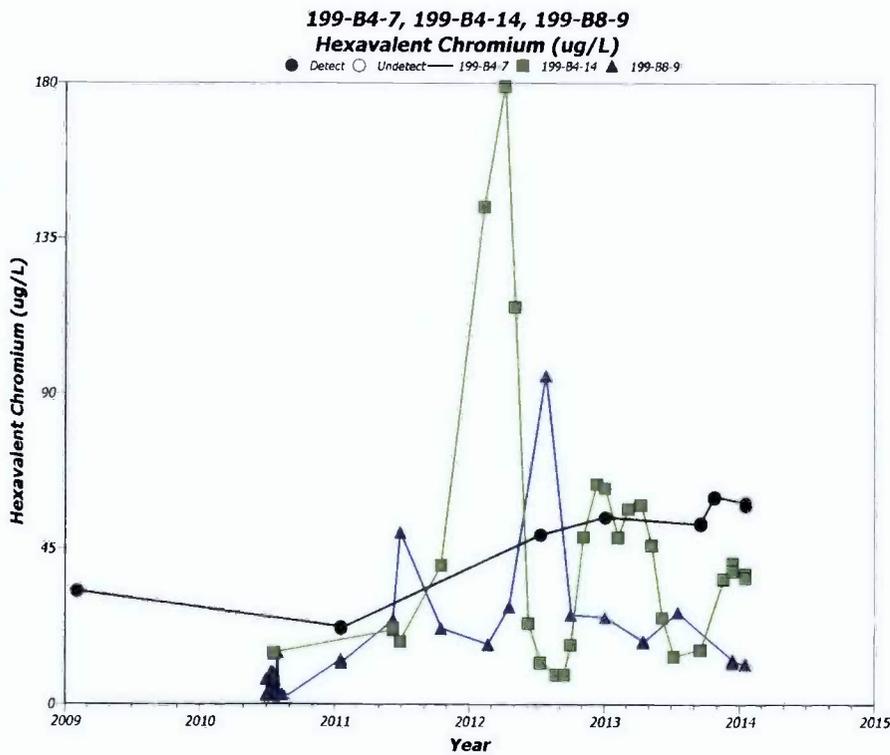


Figure BC-2. Hexavalent Chromium in 100-BC Monitoring Wells (through January 2014)

**100/300 Areas Unit Managers Meeting  
February 13, 2014**

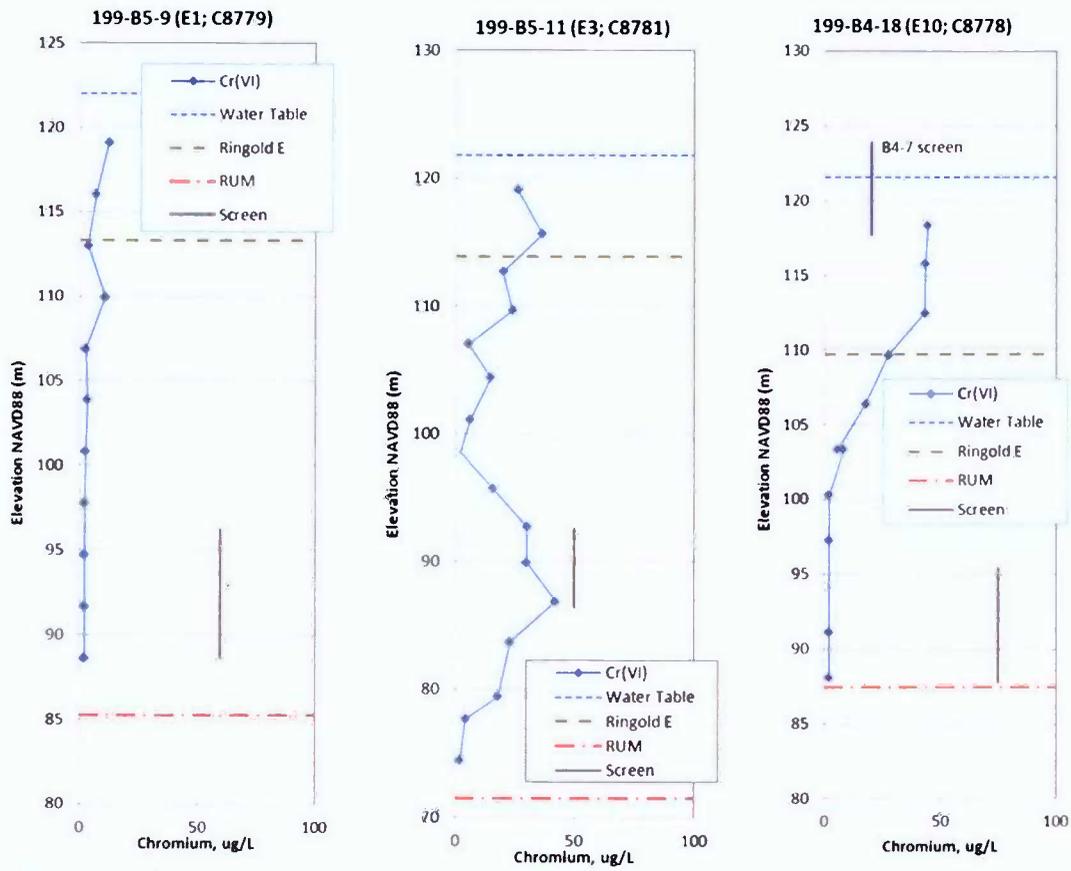


Figure BC-3. Hexavalent Chromium in Water Samples Collected During Drilling

**100/300 Areas Unit Managers Meeting  
February 13, 2014**

**100-NR-2 Groundwater Operable Unit – Bill Faught/Virginia Rohay**

- CERCLA Process Implementation:
  - The Draft A RI/FS report (DOE/RL-2012-15) and Proposed Plan (DOE/RL-2012-68) were transmitted to Ecology on June 24, 2013, completing TPA milestone M-015-75. Ecology comments on the RI/FS report were received on October 2, 2013. Preliminary responses have been prepared and in RL review.
  - Preliminary responses have been prepared to Ecology's comments on Rev. 1 Draft A of the Remedial Design/Remedial Action Work Plan (DOE/RL-2001-27) for Chapters 1 and 2. Chapters are being delivered weekly along with working comments for the RD/RA WP. The RD/RAWP is being revised to support the interim ROD amendment and field work to finish at least 1,000 feet of barrier injections this year.
  - The construction and performance report is being prepared on the apatite barrier wells completed in 2011 in accordance with the design optimization study.
- Monitoring & Reporting:

Background- Aquifer tubes C7934, C7935, and C7936 are located adjacent to one another, with screens at depths of 14.41 ft (C7934), 18.75 ft (C7935), and 29.19 ft (C7936). The locations of aquifer tubes C7934, C7935, and C7936 are shown on Figure 100NR2-1. Samples were collected from these aquifer tubes on October 7, 2013, as part of routine annual sampling of aquifer tubes. Both the November and the December sampling events were missed because of the 100-BC-5 sampling and resource limitations. The samples scheduled for January have been collected. The next samples are scheduled for February per Table 3 below.

  - Tritium: Concentrations of tritium increased in all three aquifer tubes to 120,000 pCi/L, 110,000 pCi/L, and 57,000 pCi/L, respectively (Figure 100NR2-2). The increase in the tritium concentrations is likely due to existing contamination that was mobilized by dust suppression water during Interim Remediation in 2012/2013. Field activities are anticipated to continue through February 2014 (backfilling predominantly).
  - Strontium-90 concentrations measured in all three aquifer tubes were consistent with concentrations measured prior to December 2012 (Figure 100NR2-3). Strontium-90 concentrations are higher in the shallow (C7934) and mid-depth (C7935) aquifer tubes and show slight downward trends (Figure 100NR2-4). The strontium-90 concentrations in the deep (C7936) aquifer tube show a slight upward trend. These concentrations are consistent with the conceptual site model that the strontium-90 concentrations will exceed the drinking water standard for an extended period of time.

Summary- Based on information indicating that field remedial actions will continue for only one more month it is recommended that aquifer tubes C7934, C7935, and C7936 be sampled monthly through April. and then a final data assessment be performed.

  - The next event for CERCLA and RCRA sampling is scheduled for March 2014. As of January 28, 22 of the 25 aquifer tubes scheduled for sampling in December had been sampled.

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Figure 100NR2-1. Locations of Aquifer Tubes C7934, C7935, and C7936.

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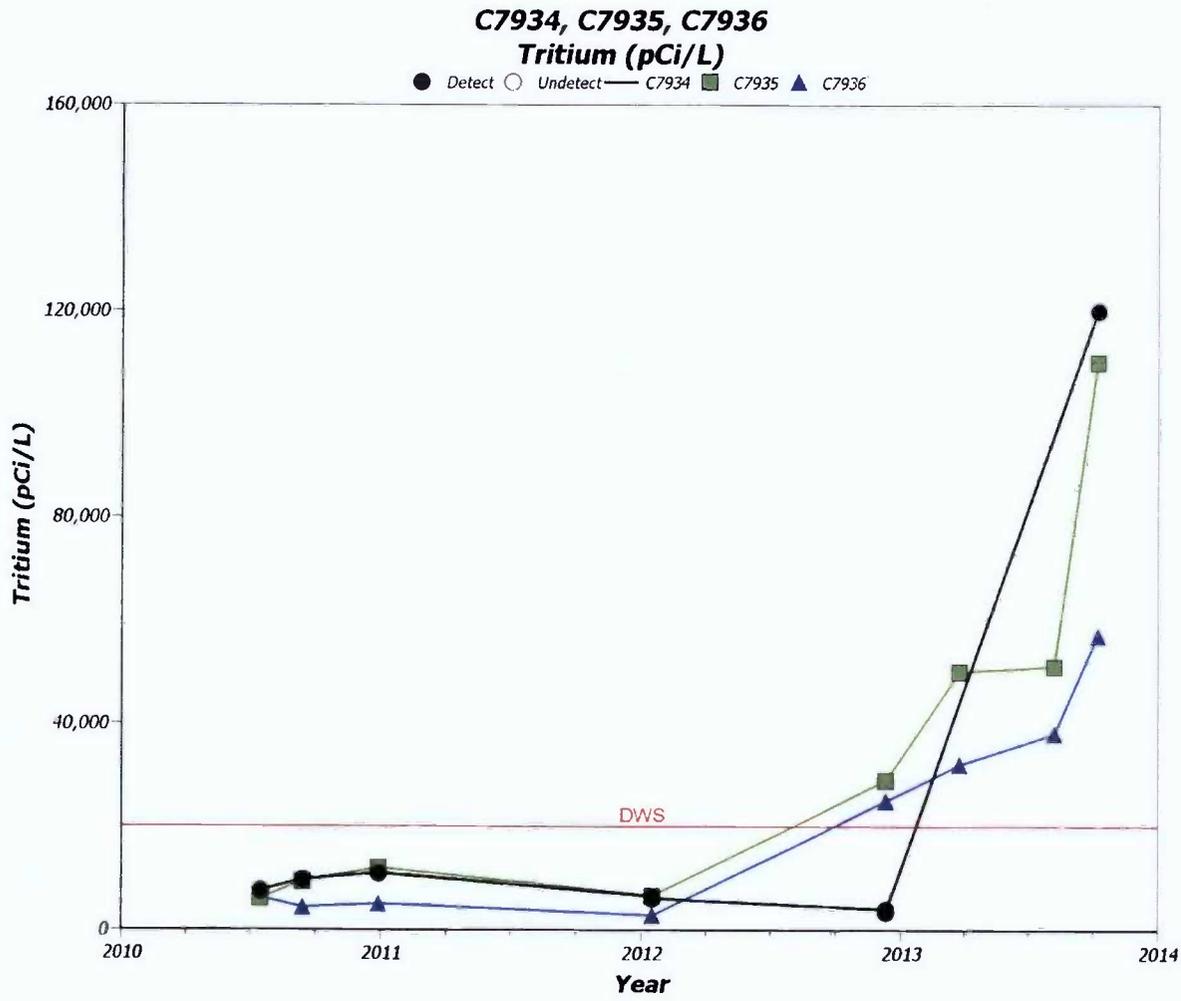


Figure 100NR2-2. Tritium Trends (through October 7, 2013) at Aquifer Tubes C7934, C7935, and C7936 in the 100-NR-2 OU

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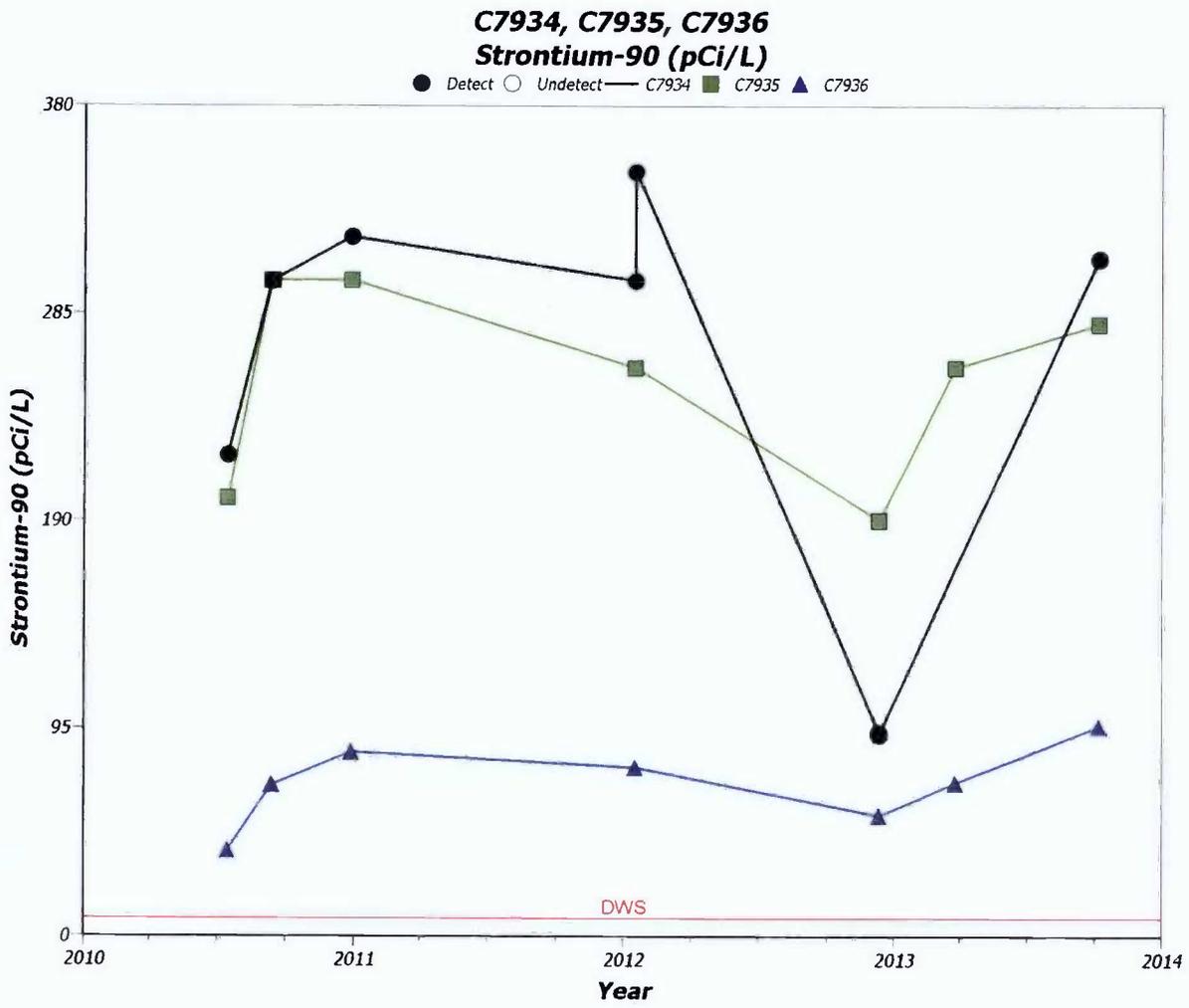


Figure 100NR2-3: Strontium-90 Trends (through October 7, 2013) in Aquifer Tubes C7934, C7935, and C7936

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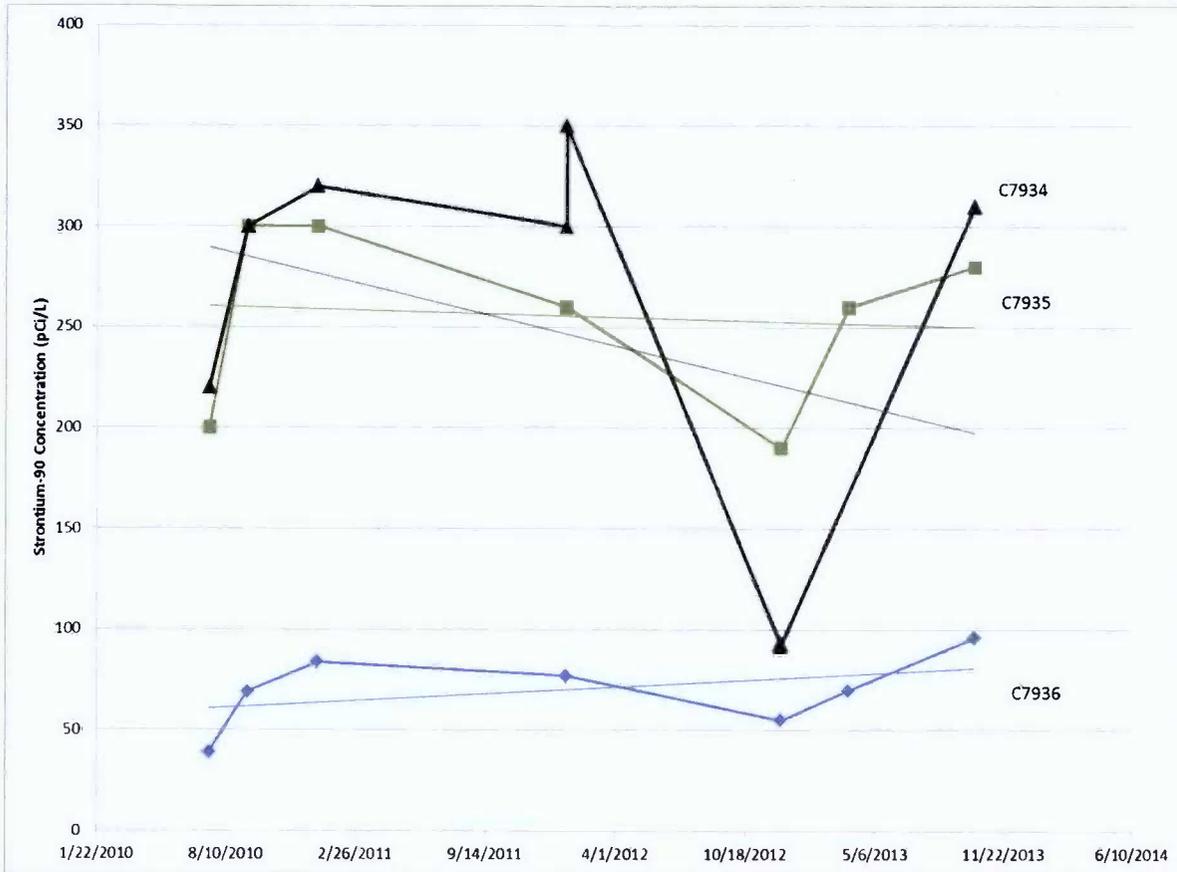


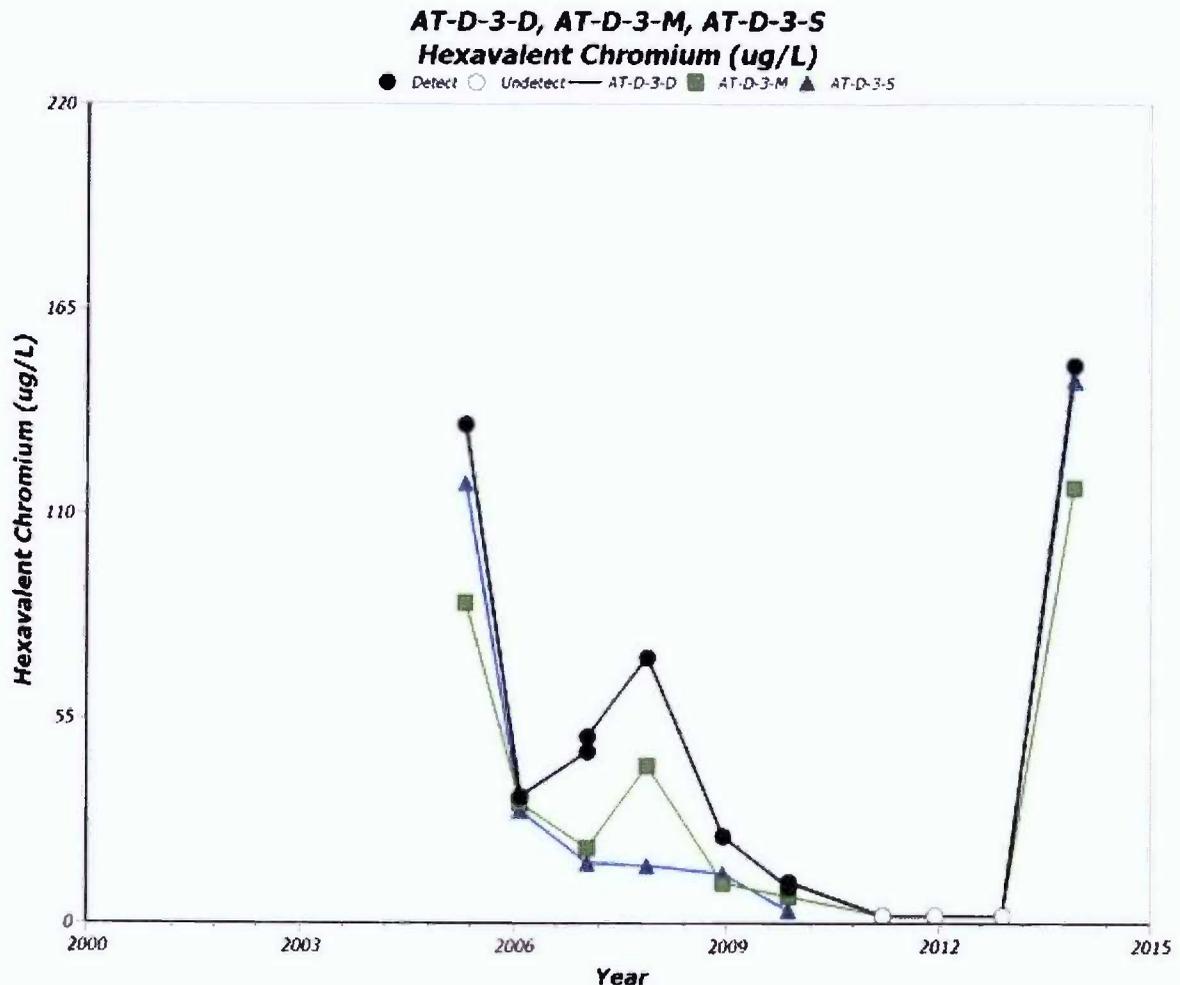
Figure 100-NR2-4. Strontium-90 Trend Plots and Linear Trend-Lines for Aquifer Tubes C7934, C7935, and C7936 as of October 7, 2013

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**100-HR-3 Groundwater Operable Unit – Bert Day/Kris Ivarson**

- CERCLA Process Implementation:
  - RI/FS & PP: RL has provided proposed responses to approximately 93% of more than 700 comments on the RI/FS document. RL and Ecology have reach agreement on resolution of approximately 87% of the comments.
  - RD/RAWP, Monitoring Plan, and Operations and Maintenance Plan: Conducting Decisional Draft review
- Remedial Actions and System Modifications
  - Operations continue at DX and HX pump-and-treat system. January 2014 performance:
    - The systems treated 49.28 million gallons
    - The system removed 23.75 kg of hexavalent chromium.
  - Received RL technical direction (14-AMRP-0090) on January 17, 2014, to reduce the DX treatment system throughput by up to 200 gallons per minute to accommodate sampling as agreed to in the above DQO/SI. On January 21, 2014, three affected DX injection wells were turned off (199-D5-128, 199-D5-42, and 199-D5-129); extraction wells (ME30 – ME40) were shut off to offset the lost injection capacity.
- Monitoring & Reporting
  - Conducted Data Quality Objectives/Sampling Instruction (DQO/SI) meeting on January 16, 2014, to assess groundwater impacts of the residual contamination (groundwater and vadose zone) within the 100-D-100 excavation bottom. Meeting attendees included WCH, CHPRC, RL, PNNL, and Ecology. A DQO/SI workshop was completed on January 22, 2014. The draft DQO/SI was provided for a concurrent review on January 30, 2014.
  - Aquifer tubes AT-D-3-D, AT-D-3-M, AT-D-3-S, and 38-M showed an increase in hexavalent chromium during the fall sampling. These are located near the 100-D northern plume, in an area previously identified as having the potential for additional action. Upgradient extraction wells (199-D5-20, 199-D5-88, and 199-D8-73) are in operation, but also exhibiting increased concentrations. Well 199-D5-153 was drilled in that area to be connected to the extraction system to mitigate this issue.

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**100-FR-3 Groundwater Operable Unit – Phil Burke/Mary Hartman**

- CERCLA Process Implementation:
  - EPA Legal comments were received on January 23, 2014 and the team has scheduled a series of meeting to resolve and revise the Proposed Plan. The final Rev 0 Documents (RI/FS, Proposed Plan and Fact Sheet) will be completed in the February -April timeframe. The public comment period is anticipated to occur in May/June. Preparation of the ROD and Responsiveness Summary will occur from June to September and the ROD is anticipated to be issued in September 2014.
- Monitoring & Reporting
  - Well 199-F8-3 was sampled in January 2014 (delayed from October because it needed repair). This completed the annual sampling event.
  - Two aquifer tubes located downstream of 100-F were sampled in early January (delayed from October because of resource limitations). Sampling of the last two aquifer tubes are scheduled for the coming weeks.

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**300-FF-5 Groundwater Operable Unit – Phil Burke/Virginia Rohay**

- CERCLA Process Implementation:
  - Preparation of the Remedial Design Report/Remedial Action Work Plan is underway and a decisional draft for RL review is scheduled for Mid-March.
- Monitoring & Reporting
  - The 300-FF-5 Groundwater OU includes the groundwater impacted by releases from waste sites associated with three geographic sub regions: 300 Area Industrial Complex, 618-11 Burial Ground, and 618-10 Burial Ground/316-4 Cribs.
    - 300 Area Industrial Complex — As of January 28, 2014, 54 of the 64 wells that were scheduled to be sampled in December had been sampled. The next sampling event is scheduled for March 2014.
    - 618-11 Burial Ground — As of January 28, all six of the wells scheduled for sampling in October had been sampled and none of the 3 wells scheduled for sampling in January 2014 had been sampled.
    - 618-10 Burial Ground/316-4 Crib — As of January 28, 2014, 4 of the 6 wells scheduled for sampling in December 2013 had been sampled. Access to two of the wells is restricted due to the associated remediation activities for 618-10 and will be sampled when available.
  - RCRA Monitoring – 300 Area Process Trenches (316-5)
    - As of January 28, all 8 wells scheduled to be sampled in December had been sampled and none of the 8 wells scheduled to be sampled in January 2014 had been sampled.
  - 300 Area Aquifer Tubes
    - As of January 28, 2014, all 28 aquifer tubes scheduled to be sampled in December had been sampled. The next sampling event is scheduled for March 2014.

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**Information Tables for Groundwater Sampling**

**Table 1 Wells, Aquifer Tubes and springs in the River Corridor Areas Successfully Sampled in January 2014**

<b>100-BC-5</b>	<b>100-FR-3</b>	<b>100-HR-3-D</b>	<b>100-HR-3-H</b>	<b>100-KR-4</b>	<b>100-NR-2</b>	<b>1100-EM-1</b>	<b>300-FF-5</b>
199-B4-14	199-F8-3	199-D2-11	199-H1-32	199-K-140	199-K-150	699-S27-E14	399-1-1
199-B4-7	74-D	199-D3-2	199-H1-32	199-K-141	C7881	699-S27-E9A	399-1-10A
199-B5-6	75-D	199-D4-1	199-H1-33	199-K-144	C7934	699-S28-E12	399-1-10B
199-B8-9		199-D4-19	199-H1-33	199-K-163	C7935	699-S29-E16A	399-1-11
C8840		199-D4-26	199-H1-35	199-K-166	C7936	699-S31-E10A	399-1-12
C8841		199-D4-39	199-H1-37	199-K-168	N116mArray-10A	699-S31-E10C	399-1-15
C8842		199-D4-86	199-H1-38	199-K-173	N116mArray-11A	699-S31-E8A	399-1-16A
C8852		199-D4-92	199-H1-39	199-K-181	N116mArray-13A	699-S36-E13A	399-1-16B
C8856		199-D4-95	199-H1-40	199-K-182	N116mArray-15A	699-S37-E14	399-1-16C
C8859		199-D4-96	199-H3-4	199-K-196	N116mArray-3A	699-S41-E12	399-1-17A
C8860		199-D4-97	199-H4-12C	199-K-198	N116mArray-6A	699-S42-E8A	399-1-17B
C8861		199-D4-98	199-H4-15A	199-K-199	N116mArray-8A		399-1-17C
		199-D4-99	199-H4-4	199-K-23	N116mArray-9A		399-1-18A
		199-D5-101	199-H4-6	699-73-61	NVP1-2		399-1-18B
		199-D5-103	199-H4-84	C7641	NVP1-3		399-1-18C
		199-D5-103	45-D	C7642	NVP1-4		399-1-21A
		199-D5-104	45-M	C7643	NVP1-5		399-1-21B
		199-D5-104	45-S		NVP2-115.1		399-1-23
		199-D5-106	699-101-45		NVP2-115.4		399-1-54
		199-D5-127	AT-H-2-D		NVP2-115.7		399-1-55
		199-D5-133	AT-H-2-M		NVP2-116.0		399-1-56
		199-D5-14	AT-H-2-S		NVP2-116.3		399-1-6
		199-D5-145	C5679				399-1-61
		199-D5-145	C5680				399-1-62
		199-D5-146	C6287				399-1-64
		199-D5-146	C6288				399-1-7
		199-D5-148	C6290				399-1-8
		199-D5-20	C6291				399-1-9
		199-D5-32	C6293				399-2-1
		199-D5-33	C6296				399-2-2
		199-D5-36	C6297				399-2-32
		199-D5-37	C6299				399-2-5
		199-D5-39	C6300				399-3-1
		199-D5-39	C6301				399-3-10
		199-D5-43	C7649				399-3-18
		199-D5-92	C7650				399-3-19
		199-D5-97					399-3-20
		199-D5-97					399-3-21

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<b>100-BC-5</b>	<b>100-FR-3</b>	<b>100-HR-3-D</b>	<b>100-HR-3-H</b>	<b>100-KR-4</b>	<b>100-NR-2</b>	<b>1100-EM-1</b>	<b>300-FF-5</b>
		199-D8-4					399-3-33
		199-D8-6					399-3-38
		199-D8-73					399-3-9
		199-D8-89					399-4-1
		199-D8-90					399-4-11
		199-D8-91					399-4-12
		199-D8-97					399-4-14
		AT-D-5-D					399-4-15
		AT-D-5-M					399-4-7
		C6266					399-4-9
		C6267					399-5-4B
		C6268					399-6-3
		C6269					399-8-1
		C6270					399-8-5A
		C6271					699-10-E12
		C6272					699-13-3A
		C6275					699-S19-E13
		C6278					699-S20-E10
		C6281					699-S3-E12
		C6282					699-S6-E4A
		C7645					699-S6-E4D
		C7646					699-S6-E4E
		C7648					699-S6-E4K
		DD-12-4					AT-3-1-D(1)
		DD-15-2					AT-3-1-M
		DD-15-3					AT-3-1-S
		DD-15-4					AT-3-2-M
		DD-41-1					AT-3-2-S
		DD-41-2					AT-3-7-D
		DD-42-2					C6347
		DD-42-3					C6374
		DD-42-4					C6375
		DD-43-2					
		DD-43-3					
		DD-44-3					
		DD-49-1					
		DD-49-2					
		DD-49-4					
		DD-50-1					
		DD-50-2					
		DD-50-3					
		DD-50-4					

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<b>100-BC-5</b>	<b>100-FR-3</b>	<b>100-HR-3-D</b>	<b>100-HR-3-H</b>	<b>100-KR-4</b>	<b>100-NR-2</b>	<b>1100-EM-1</b>	<b>300-FF-5</b>
		Redox-3-3.3					
		Redox-4-3.0					
		Redox-4-6.0					

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**Table 2 Sample Trips Outstanding at the end of January 2014**

<b>GWIA</b>	<b>SAMP_SITE_TYPE</b>	<b>WELL_TYPE</b>	<b>SITE_NAME</b>	<b>SCHEDULE_DATE</b>	<b>Sample Status Comment</b>
100-BC-5	PROPOSED AQUIFER TUBE	AQUIFER TUBE	C8846	10/1/2013	Not Attempted
100-FR-3	AQUIFER TUBE	AQUIFER TUBE	76-D	10/1/2013	Annual
	AQUIFER TUBE	AQUIFER TUBE	77-D	10/1/2013	Annual
100-HR-3-D	WELL	GROUNDWATER WELL	199-D4-93	1/1/2014	Maintenance required
	WELL	GROUNDWATER WELL	199-D5-103	1/1/2014	Sampled 1/31/2014
	WELL	GROUNDWATER WELL	199-D5-13	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-D5-130	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-D5-131	1/1/2014	Quarterly
	WELL	PROPOSED SITE	199-D5-149	11/1/2013	Quarterly
	WELL	GROUNDWATER WELL	199-D5-34	1/1/2014	Not Attempted
	WELL	GROUNDWATER WELL	199-D7-3	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-D7-6	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-D8-101	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-D8-54A	12/1/2013	Biannual
	WELL	GROUNDWATER WELL	199-D8-68	3/1/2013	Sampled 5/29/2013
	WELL	GROUNDWATER WELL	199-D8-70	12/1/2013	Maintenance required
	WELL	GROUNDWATER WELL	199-D8-95	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-D8-96	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-D8-98	1/1/2014	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	DD-06-2	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	DD-06-3	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	DD-16-3	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	DD-17-2	11/1/2013	Quarterly
AQUIFER TUBE	AQUIFER TUBE	DD-17-3	11/1/2013	Quarterly	
AQUIFER TUBE	AQUIFER TUBE	DD-39-1	11/1/2013	Quarterly	
AQUIFER TUBE	AQUIFER TUBE	Redox-1-3.3	11/1/2013	Quarterly	
AQUIFER TUBE	AQUIFER TUBE	Redox-2-6.0	11/1/2013	Quarterly	
100-HR-3-H	WELL	GROUNDWATER WELL	199-H1-3	12/1/2013	Quarterly
	WELL	GROUNDWATER WELL	199-H1-4	12/1/2013	Sampled 1/29/2014
	WELL	GROUNDWATER WELL	199-H4-8	11/1/2013	Maintenance required
	AQUIFER TUBE	AQUIFER TUBE	50-M	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	50-S	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	51-D	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	51-M	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	51-S	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	52-D	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	52-M	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	52-S	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	54-D	11/1/2013	Quarterly
AQUIFER TUBE	AQUIFER TUBE	54-M	11/1/2013	Quarterly	

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<b>GWIA</b>	<b>SAMP_SITE_TYPE</b>	<b>WELL_TYPE</b>	<b>SITE_NAME</b>	<b>SCHEDULE_DATE</b>	<b>Sample Status Comment</b>
	AQUIFER TUBE	AQUIFER TUBE	54-S	11/1/2013	Quarterly
	WELL	GROUNDWATER WELL	699-100-43B	1/1/2014	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	AT-H-1-D	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5632	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5634	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5635	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5636	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5637	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5644	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5673	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5674	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5676	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5677	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C5681	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C6284	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C6285	11/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C6286	11/1/2013	Quarterly
100-KR-4	SPRING		100-K SPRING 68-1	10/1/2012	Sampled 10/1/2013
	WELL	GROUNDWATER WELL	199-K-117A	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-K-18	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-K-20	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	199-K-34	1/1/2014	Quarterly
100-NR-2	WELL	GROUNDWATER WELL	199-K-149	11/1/2013	Maintenance required
	WELL	GROUNDWATER WELL	199-N-41	9/1/2013	Road Maintenance
	WELL	GROUNDWATER WELL	199-N-41	12/1/2013	Road Maintenance
	AQUIFER TUBE	AQUIFER TUBE	N116mArray-1A	12/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	N116mArray-8.5A	12/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	NVP1-1	12/1/2013	Quarterly
1100-EM-1	WELL	GROUNDWATER WELL	699-S30-E15A	12/1/2013	Maintenance required
300-FF-5	WELL	GROUNDWATER WELL	399-1-2	12/1/2013	Maintenance required
	WELL	GROUNDWATER WELL	399-1-57	12/1/2013	Maintenance required
	WELL	GROUNDWATER WELL	399-1-58	12/1/2013	Quarterly
	WELL	GROUNDWATER WELL	399-1-59	12/1/2013	Quarterly
	WELL	GROUNDWATER WELL	399-1-63	9/1/2013	Maintenance required
	WELL	GROUNDWATER WELL	399-3-12	12/1/2013	Quarterly
	WELL	GROUNDWATER WELL	399-3-2	12/1/2013	Access Restricted
	WELL	GROUNDWATER WELL	399-3-22	12/1/2013	Maintenance required
	WELL	GROUNDWATER WELL	399-3-6	12/1/2013	Access Restricted
	WELL	GROUNDWATER WELL	399-4-10	12/1/2013	Access Restricted
	WELL	GROUNDWATER WELL	399-6-5	12/1/2013	Quarterly
	WELL	GROUNDWATER WELL	699-12-2C	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	699-13-2D	1/1/2014	Quarterly

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<b>GWIA</b>	<b>SAMP_SITE_TYPE</b>	<b>WELL_TYPE</b>	<b>SITE_NAME</b>	<b>SCHEDULE_DATE</b>	<b>Sample Status Comment</b>
	WELL	GROUNDWATER WELL	699-13-3A	1/1/2014	Quarterly
	WELL	GROUNDWATER WELL	699-S6-E4B	12/1/2013	Maintenance required
	WELL	GROUNDWATER WELL	699-S6-E4L	12/1/2013	Quarterly
	AQUIFER TUBE	AQUIFER TUBE	C6368	10/1/2013	Annual
	AQUIFER TUBE	AQUIFER TUBE	C6371	10/1/2013	Annual

**Table 3 Groundwater Sampling Locations in the River Corridor Areas Scheduled to be sampled in February 2014**

<b>100-BC-5</b>	<b>100-FR-3</b>	<b>100-HR-3-D</b>	<b>100-HR-3-H</b>	<b>100-KR-4</b>	<b>100-NR-2</b>	<b>1100-EM-1</b>	<b>300-FF-5</b>
199-B4-14		199-D2-11	199-H1-7	199-K-106A	199-K-150		399-1-10A
C8840		199-D3-5	199-H2-1	199-K-107A	C7934		399-1-10B
C8841		199-D5-103	199-H3-10	199-K-108A	C7935		399-1-16A
C8842		199-D5-104	199-H3-3	199-K-111A	C7936		399-1-16B
C8843		199-D5-106	199-H3-5	199-K-157			399-1-17A
C8844		199-D5-132	199-H3-6	199-K-184			399-1-17B
C8847		199-D5-133	199-H3-7	199-K-185			399-1-18A
C8848		199-D5-142	199-H3-9	199-K-186			399-1-18B
C8851		199-D5-143	199-H4-11	199-K-187			
C8852		199-D5-145	199-H4-12A	199-K-188			
C8855		199-D5-146	199-H4-16	199-K-189			
C8856		199-D5-147	199-H4-46	199-K-190			
C8859		199-D5-148	199-H4-49	199-K-191			
C8860		199-D5-149	199-H4-65	199-K-192			
C8861		199-D5-34	199-H4-84	199-K-193			
		199-D5-39	199-H4-85	199-K-194			
		199-D5-40	199-H4-86	199-K-197			
		199-D5-97	199-H5-1A	199-K-198			
		199-D6-3	699-94-41	199-K-199			
		199-D8-71	699-94-43	199-K-200			
		699-93-48A	699-95-45	199-K-201			
		699-95-48	699-97-41	199-K-32A			
		699-95-51	699-98-46	699-78-62			
		699-96-52B	699-99-41				
		699-97-51A	699-99-44				
		699-98-49A					
		699-98-51					

# Attachment 2

February 13, 2014 Unit Manager's Meeting  
Field Remediation Status

**100-B/C**

- Closure documentation for 100-C-7:1 expected for completion in mid-March 2014
- Backfill activities at 100-C-7:1 complete, contouring and revegetation activities commenced on 2/3/14

**100-D**

- Completed design excavation at 100-D-100. Removal of additional contamination in the northeast corner of excavation completed on 1/28/14. Sample data currently being evaluated
- Continued expansion of the 100-D-30/104 excavation at the southeast corner
- Continued remediation and stockpiling activities at 100-D-31:11/12
- Continued super-dump load-out to ERDF
- Continued LDR chromium shipments to ERDF

**100-H**

- Continued excavation activities at 100-H-28:2-5 and 100-H-42
- Continued super-dump load-out to ERDF

**100-K**

- Waste Site Reclassification forms complete for 100-K orphan sites
- Continued revegetation activities at 100-K orphan sites

**100-N**

- Continued remediation of 100-N-84:2 (Barge Unloading Pipe), 100-N-84:4, 100-N-84:5, and 100-N-84:6
- Completed remediation at 100-N-94, 100-N-97, 100-N-99 and plume chase at 600-340 pending favorable sample results
- Prep access to re-start continued remediation at 100-N-93
- Continued deep zone only backfill utilizing local BCL stockpiles.
- Continued system operations for in-situ bioremediation system for UPR-100-N-17, deep vadose zone remediation; draft Operations & Maintenance Manual for system operation currently in regulator review
- Continued preparation of closure documents and conducting verification sampling

### **618-10 Trench Remediation**

- Continued excavation and sorting of trench area
- Continued waste load out
- Continued drum characterization & handling activities
- Began infrastructure work for VPU mockup and methods testing area

### **100-IU-2/6**

- Completed excavation and load-out activities at 600-279, 600-373, 600-374, 600-375, 600-376, 600-377 and 600-378 pending favorable sample results
- Completed Remediation of 600-382, 600-383 and 600-384
- Collected closeout samples at 600-279, 600-373, 600-374, 600-375 and 600-376, 600-377, 600-379, 600-382, 600-383 and 600-384
- Began excavation and load-out activities at 600-378 and 600-379
- Began revegetation activities at various IU-2 sites

# Attachment 3

UIMM K SCHEDULE

Activity ID	Activity Name	% Cmpl	RD	Start	Finish	F	M	April 2014	May 2014	June 2014	July 2014	A
<b>100-K-84 Red Soil Sw. of 118-K-1</b>												
<b>Revegetation</b>												
RK084E2	Revegetation --100-K-84 (2.3 Acres)	75%	4	15-Jan-14 A	13-Feb-14	0	1	2	0	1	2	0
<b>100-K-86 - Stained Areas</b>												
<b>Revegetation</b>												
RK086E2	Revegetation --100-K-86 (0.74 Acres)	75%	4	16-Jan-14 A	13-Feb-14	0	1	2	0	1	2	0
<b>100-K-87 Asbestos</b>												
<b>Revegetation</b>												
RK087E2	Revegetation --100-K-87 (0.1 Acres)	75%	4	21-Jan-14 A	13-Feb-14	0	1	2	0	1	2	0
<b>100-K-91 - Battery</b>												
<b>Revegetation</b>												
RK091E2	Revegetation --100-K-91 (0.1 Acres)	75%	4	22-Jan-14 A	13-Feb-14	0	1	2	0	1	2	0
<b>100-K-92 - Reddish Stained Gravels</b>												
<b>Revegetation</b>												
RK092E2	Revegetation --100-K-92 (1.57 Acres)	75%	4	23-Jan-14 A	13-Feb-14	0	1	2	0	1	2	0
<b>100-K-93 - Drum Remnant</b>												
<b>Revegetation</b>												
RK093E2	Revegetation --100-K-93 (0.1 Acres)	75%	4	23-Jan-14 A	13-Feb-14	0	1	2	0	1	2	0
<b>100-K-95 - Tar Dump</b>												
<b>Revegetation</b>												
RK095E2	Revegetation --100-K-95 (0.3 Acres)	75%	4	23-Jan-14 A	13-Feb-14	0	1	2	0	1	2	0
<b>118-K-1 Burial Ground</b>												
<b>Final Project Closeout</b>												
RK18K12030	Prepare Closure Document 118-K-1	95%	10	04-Dec-12 A	26-Feb-14							
RK18K12052	RL/Reg Sign Rev. 0 Closure Document for - 118-K-1	50%	4	22-Jan-14 A	13-Feb-14							

# Attachment 4

**100K Area Unit Managers Meeting  
February 13, 2014**

**RL-0012 Sludge Treatment Project**

TPA Milestone M-016-173, *K Basin Sludge Treatment and Packaging Technology Selection* (3/31/15) - At Risk

- The phase 2 treatment and packaging site evaluation report was issued in September 2012. Evaluation of options and consideration of overarching policy issues leading to preparation of a recommendation are not funded in FY14.

TPA Milestone M-016-175, *Begin Sludge Removal from 105-KW Fuel Storage Basin* (9/30/14) - At Risk

- DOE approved the ECRTS Preliminary Design Safety Analysis, the Safety Design Strategy, the Critical Decision-2/3, and the RL STP Project Execution Plan on 02/03/14. These approvals allow procurement of the ECRTS process components to commence.
- 105-K West Basin Annex mezzanine structural steel installation is planned to start in early March.
- The Integrated Process Optimization Demonstration continues at MASF. Process improvements identified during TRL-6 testing and earlier IPOD demonstrations are now being confirmed.

TPA Milestone M-016-176, *Complete Sludge Removal from 105-KW Fuel Storage Basin* (12/31/15) – At Risk

- Initiation of this milestone follows completion of Milestone M-016-175.

TPA Milestone M-016-178, *Initiate Deactivation of 105-KW Fuel Storage Basin* (12/31/15) – At Risk

- Pre-deactivation activities including below-water debris identification, dose rate measurement, relocation of objects to clear the ECRTS footprint, and debris characterization are in-progress to facilitate future deactivation.

**RL-0041 K Facility Demolition and Soil Remediation**

TPA Milestone M-016-143, *Complete the Interim Response Actions for 100 K Area Phase 2* (12/31/15) – At Risk

- Response actions for phase 2 buildings are complete. Remediation of phase 2 waste sites is not currently funded in FY14.

TPA Milestone M-093-28, *Submit a Change Package for Proposed Interim Milestones for 105-KE and 105-KW Reactor Interim Safe Storage* (12/31/15) - On Schedule

- New milestone created by TPA Change Package M-93-12-02, signed 4/25/2013. Replaced the deleted milestones M-093-22 and M-093-26.

TPA Milestone M-093-27, *Complete 105-KE and 105-KW Reactor Interim Safe Storage in Accordance with the Removal Action Work Plan* (12/31/19) - On Schedule

**Other Information**

- No demolition or soil remediation activities were conducted at 100K during January.

# Attachment 5

174453

**^WCH Document Control**

---

**From:** Saueressig, Daniel G  
**Sent:** Wednesday, January 29, 2014 3:22 PM  
**To:** ^WCH Document Control  
**Subject:** FW: REQUEST TO EXTEND REVEGETATION WINDOW  
**Attachments:** reveg c, k, IU outsidewindow\_01\_28\_14.xls

Please provide a chron number (and include the attachment). This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Guzzetti, Christopher [mailto:Guzzetti.Christopher@epa.gov]  
**Sent:** Wednesday, January 29, 2014 2:57 PM  
**To:** Saueressig, Daniel G; Buelow, Laura  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T; Lerch, Jeffrey A; Wilkinson, Stephen G  
**Subject:** RE: REQUEST TO EXTEND REVEGETATION WINDOW

I concur for 100K and IU sites.

Christopher J. Guzzetti  
Project Manager  
Hanford Project Office  
U.S. Environmental Protection Agency  
309 Bradley Boulevard, Suite 115  
Richland, WA 99352

Phone: (509) 376-9529  
Fax: (509) 376-2396  
Email: [guzzetti.christopher@epa.gov](mailto:guzzetti.christopher@epa.gov)

---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Tuesday, January 28, 2014 10:58 AM  
**To:** Buelow, Laura; Guzzetti, Christopher  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T; Lerch, Jeffrey A; Wilkinson, Stephen G  
**Subject:** REQUEST TO EXTEND REVEGETATION WINDOW

Hi Laura/Chris, I would like to request your approval to conduct revegetation activities at 100-C-7:1 and select 100-K and IU waste sites (see attached list of sites) in February and possibly into March 2013. Appendix H of the

1/29/2014

RDR/RAWP (DOE/RL-96-17), Revegetation Plan for the 100 Areas, specifies a planting window of November through January of each year, although it also states that the plan is generic and that site specific conditions will be evaluated and adjustments made when necessary. It is possible that all of the IU sites listed in the attached table will be revegetated by the end of January, however, they are included in this request in case unforeseen delays are encountered this week and they don't get finished.

Delays associated the final backfill at 100-C-7:1 and the sheer amount of sites needing to be revegetated has necessitated this request to extend the window for revegetation. Our revegetation subject matter expert believes that the soil moisture content will remain conducive to conducting this activity through March 2014 and if conditions change, the sites would be manually watered to ensure viability of the seeds and seedlings. In addition, these sites will be evaluated in the fall to ascertain the success of the revegetation effort and if the plants did not take as determined by the criteria in the Revegetation Plan, the sites would be revegetated again during the next planting window (November 2014 through January 2015). We currently have personnel and materials (seed and seedlings) available onsite to conduct this work and would like to accomplish this task while the materials are available.

Let me know if you concur and I'll document the agreement at the next UMM.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

<< File: reveg c, k, IU outsidewindow\_01\_28\_14.xls >>



# Attachment 6

UMM B/C SCHEDULE

Activity ID	Activity Name	% Cmpl	RD	Start	Finish	F	M	A	M	J	J	A
						0	1	2	0	1	1	2

**100-C-7 Waste Site Remediation**

**Closeout Sampling & Docs**

BC502D131	Prepare Closure Document for 100-C-7:1 West Sidewall / Stockpile Areas	96%	29	06-Mar-13 A	01-Apr-14							
BC524G86	RL/Regulator Sign Rev. 0 Closure Document for 100-C-7:1 West Sidewall	0%	4	17-Mar-14*	20-Mar-14							

**Revegetation**

BC502E22	100-C-7:1 Perform Revegetation (30 acres)	50%	19	02-Jan-14 A	13-Mar-14							
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**600-253 Waste Site (Pit 24)**

**Backfill**

BC508C	600-253 (Pit 24) Recontouring	0%	10	12-May-14*	28-May-14							
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**Revegetation**

BC508E2	600-253 (Pit 24) Plant Reveg/Sage (40 acres)	0%	4	03-Nov-14*	06-Nov-14							
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Current Bar Labels

% Complete

# Attachment 7

## **100 Area D4/ISS Status**

February 13, 2014

### **100-N**

**100-N Miscellaneous Items** – Removal and disposition of miscellaneous materials and equipment from around the site continues. Decontamination of the remaining heavy equipment has been completed. The equipment will be prepared, “wrapped,” and relocated to either the 300 Area or ERDF. Continue preparation for D4 demobilization from 100-N.

**181-N River Pump House Anchor Blocks** – Continued wire cutting of anchor blocks.

### **100-B**

**151-B Electrical Switchyard** – Demolition of above grade structure complete on 2/11/14. Continued demolition of below grade structures and load-out.

**183-B Clearwells** – Completed mobilization activities on 1/3/14. Commenced construction of the ramp into the Clearwells on 2/6/14.

# Attachment 8

174452

**^WCH Document Control**

---

**From:** Saueressig, Daniel G  
**Sent:** Wednesday, January 29, 2014 3:21 PM  
**To:** ^WCH Document Control  
**Subject:** FW: REQUEST TO EXTEND REVEGETATION WINDOW

Please provide a chron number. This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Buelow, Laura [mailto:Buelow.Laura@epa.gov]  
**Sent:** Wednesday, January 29, 2014 3:11 PM  
**To:** Guzzetti, Christopher; Saueressig, Daniel G  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T; Lerch, Jeffrey A; Wilkinson, Stephen G  
**Subject:** RE: REQUEST TO EXTEND REVEGETATION WINDOW

Laura Puerto Saueressig  
Wednesday, January 29, 2014 3:11 PM  
Christopher Saueressig

I concur for 100-C-7:1.

Laura

---

**From:** Guzzetti, Christopher  
**Sent:** Wednesday, January 29, 2014 2:57 PM  
**To:** Saueressig, Daniel G; Buelow, Laura  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T; Lerch, Jeffrey A; Wilkinson, Stephen G  
**Subject:** RE: REQUEST TO EXTEND REVEGETATION WINDOW

I concur for 100K and IU sites.

Christopher J. Guzzetti  
Project Manager  
Hanford Project Office  
U.S. Environmental Protection Agency  
309 Bradley Boulevard, Suite 115  
Richland, WA 99352

Phone: (509) 376-9529  
Fax: (509) 376-2396  
Email: [guzzetti.christopher@epa.gov](mailto:guzzetti.christopher@epa.gov)

---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Tuesday, January 28, 2014 10:58 AM  
**To:** Buelow, Laura; Guzzetti, Christopher  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T; Lerch, Jeffrey A; Wilkinson, Stephen G  
**Subject:** REQUEST TO EXTEND REVEGETATION WINDOW

Hi Laura/Chris, I would like to request your approval to conduct revegetation activities at 100-C-7:1 and select 100-K and IU waste sites (see attached list of sites) in February and possibly into March 2013. Appendix H of the RDR/RAWP (DOE/RL-96-17), Revegetation Plan for the 100 Areas, specifies a planting window of November through January of each year, although it also states that the plan is generic and that site specific conditions will be evaluated and adjustments made when necessary. It is possible that all of the IU sites listed in the attached table will be revegetated by the end of January, however, they are included in this request in case unforeseen delays are encountered this week and they don't get finished.

Delays associated the final backfill at 100-C-7:1 and the sheer amount of sites needing to be revegetated has necessitated this request to extend the window for revegetation. Our revegetation subject matter expert believes that the soil moisture content will remain conducive to conducting this activity through March 2014 and if conditions change, the sites would be manually watered to ensure viability of the seeds and seedlings. In addition, these sites will be evaluated in the fall to ascertain the success of the revegetation effort and if the plants did not take as determined by the criteria in the Revegetation Plan, the sites would be revegetated again during the next planting window (November 2014 through January 2015). We currently have personnel and materials (seed and seedlings) available onsite to conduct this work and would like to accomplish this task while the materials are available.

Let me know if you concur and I'll document the agreement at the next UMM.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

<< File: reveg c, k, IU outsidewindow\_01\_28\_14.xls >>

# Attachment 9

# FY13 CPP 100-N AREA CURRENT

Activity ID	Activity Name	% Cmpl	RD Start	Finish	February 2014	March 2014	April 2014	May 2014
<b>Excavation</b>								
NB5B8A	Excavation - 100-N-84.6 (12,721 BCM)	25%	1 10-Apr-13 A	13-Feb-14				
NB5B4D08	Excavation over IPB - 100-N-84.2 (20,819 BCM)	99%	2 17-Apr-13 A	11-Feb-14				
NB5B7A	Excavation - 100-N-84.5 (39,722 BCM)	32%	3 03-Jul-13 A	12-Feb-14				
NB5B6A	Excavation - 120-N-4 (646.86 BCM)	99%	1 08-Oct-13 A	10-Feb-14				
NB5B1A	Excavation - 100-N-81 (690 BCM)	99%	1 22-Oct-13 A	10-Feb-14				
NB5A3A	Excavation - 100-N-101 (132.36 BCM)	67%	1 05-Nov-13 A	10-Feb-14				
NB5093A	Excavation - 100-N-97 (10.09 BCM)	99%	1 12-Nov-13 A	10-Feb-14				
NB590A	Excavation - 100-N-91 (4.05 BCM)	99%	0 12-Nov-13 A	10-Feb-14				
NB595A	Excavation - 100-N-100 (89.58 BCM)	99%	1 13-Nov-13 A	10-Feb-14				
NB5B6A	Excavation - 100-N-84.4 (8,348 BCM)	29%	3 02-Dec-13 A	12-Feb-14				
NB591A	Excavation - 100-N-94 (51.34 BCM)	99%	1 31-Jan-14 A	11-Feb-14				
NB594A	Excavation - 100-N-99 (40.33 BCM)	99%	1 31-Jan-14 A	11-Feb-14				
NB5C1A	Excavation - 100-N-84.8 (0 BCM)	0%	12 10-Feb-14	03-Mar-14				
NB5C7A	Excavation - 100-N-104 (49 BCM)	0%	6 12-Feb-14*	24-Feb-14				
NB583A	Excavation - 100-N-82	0%	3 25-Feb-14	27-Feb-14				
NB5C3A	Excavation - 100-N-96 (2600 BCM)	0%	6 01-Oct-14*	09-Oct-14				
NB5B2A	Excavation - 100-N-83 (20,659 BCM)	0%	30 13-Oct-14	04-Dec-14				
NB5B6A60	Design - 100-N-107 (Final ROD)	0%	55 01-Oct-15*	13-Jan-16				
NB5B6A10	Excavation - 100-N-107 (Final ROD)	0%	16 09-Jun-16	07-Jul-16				
<b>Loadout</b>								
NB5B8B	Loadout - 100-N-84.6 (27,987 UST)	25%	1 10-Apr-13 A	13-Feb-14				
NB5B4D09	Loadout over IPB - 100-N-84.2 (45,800 UST)	99%	2 17-Apr-13 A	11-Feb-14				
NB5A1B10	Loadout over IPB quantity - 100-N-93 (79,895)	79%	13 13-May-13 A	11-Mar-14				
NB5B7B	Loadout - 100-N-84.5 (87,389 UST)	32%	3 11-Jul-13 A	12-Feb-14				
NB596B	Loadout - 120-N-4 (1,379.16 UST)	99%	1 08-Oct-13 A	10-Feb-14				
NB5B1B	Loadout - 100-N-81 (1,518.0 UST)	99%	1 22-Oct-13 A	10-Feb-14				
NB584D10	Loadout - 100-N-54 (500 UST)	99%	1 04-Nov-13 A	10-Feb-14				
NB5A3B	Loadout - 100-N-101 (220.0 UST)	67%	1 05-Nov-13 A	10-Feb-14				
NB5093B	Loadout - 100-N-97 (5.94 UST)	99%	1 12-Nov-13 A	10-Feb-14				
NB590B	Loadout - 100-N-91 (0.71 UST)	99%	1 13-Nov-13 A	10-Feb-14				
NB595B	Loadout - 100-N-100 (49.5 UST)	29%	3 02-Dec-13 A	12-Feb-14				
NB5B6B	Loadout - 100-N-84.4 (18,366 UST)	99%	1 31-Jan-14 A	11-Feb-14				
NB591B	Loadout - 100-N-94 (49.5 UST)	99%	1 31-Jan-14 A	11-Feb-14				
NB594B	Loadout - 100-N-99 (42.1 UST)	99%	1 31-Jan-14 A	11-Feb-14				
NB5C1B	Loadout - 100-N-84.8 (0 UST)	0%	12 10-Feb-14	03-Mar-14				
NB5C7B	Loadout - 100-N-104 (108 UST)	0%	6 12-Feb-14	24-Feb-14				
NB583B	Loadout - 100-N-82	0%	3 25-Feb-14	27-Feb-14				

Actual Work
  Remaining Work
  Milestone
  % Complete
  Actual Milestone

Data Date: 10-Feb-14

Activity ID	Activity Name	% Compl	HD	Start	Finish	February 2014	March 2014	April 2014	May 2014	
						03	10	17	24	
PROJMS1	100-N Remediation Complete (Excluding Cultural Sites)	0%	0							
NB5C3B	Loadout - 100-N-96 (2,943 UST)	0%	6	01-Oct-14	09-Oct-14					
NB5B2B	Loadout - 100-N-83 (45,451 UST)	0%	30	13-Oct-14	04-Dec-14					
NB5B6A20	Loadout - 100-N-107 (Final ROD)	0%	16	09-Jun-16	07-Jul-16					
<b>Backfill</b>										
NB535C	Backfill - 124-N-10 (9,978 BCMs)	0%	2	01-Apr-14*	02-Apr-14					
NB541C	Backfill - 130-N-1 (10,000 BCMs)	0%	4	01-Apr-14*	07-Apr-14					
NB599C	Backfill - 100-N-86 (1,030 BCM)	0%	1	14-Apr-14	14-Apr-14					
NB5092C	Backfill - 100-N-95 (2,158.57 BCM)	0%	1	14-Apr-14*	14-Apr-14					
NB509C	Backfill - 100-N-25 (333 BCMs)	0%	1	14-Apr-14*	14-Apr-14					
NB568C10	Backfill - UPR-100-N-36 AUW	0%	1	15-Apr-14	15-Apr-14					
NB568C	Backfill - UPR-100-N-36 (3,333 BCMs)	0%	1	15-Apr-14*	15-Apr-14					
NB525C11	Backfill - 100-N-61 (incl 100-N-64) AUW	0%	15	16-Apr-14*	12-May-14					
NB525C	Backfill - 100-N-61 (incl 100-N-64) 112,271 BCMs	0%	15	16-Apr-14*	12-May-14					
NB587C	Backfill - 100-N-79 (672.58 BCM)	0%	1	21-Apr-14*	21-Apr-14					
NB597C	Backfill - 628-2 (1,880.2 BCM)	0%	1	21-Apr-14	21-Apr-14					
NB5C1C	Backfill - 100-N-84:8 (0 BCM)	0%	1	06-May-14	06-May-14					
NB529C	Backfill - 116-N-4 (5,951 BCMs)	0%	1	13-May-14*	13-May-14					
NB532C	Backfill - 120-N-3 (3,915 BCMs)	0%	1	14-May-14*	14-May-14					
NB562C	Backfill - UPR-100-N-29 (0 BCMs)	0%	1	15-May-14	15-May-14					
NB564C	Backfill - UPR-100-N-30 (0 BCMs)	0%	1	15-May-14	15-May-14					
NB521C	Backfill - 100-N-57 (4,296 BCMs)	0%	1	15-May-14*	15-May-14					
NB554C	Backfill - UPR-100-N-2 (0 BCMs)	0%	1	15-May-14	15-May-14					
NB566C	Backfill - UPR-100-N-32 (0 BCMs)	0%	1	15-May-14	15-May-14					
NB545C	Backfill - UPR-100-N-1 (0 BCMs)	0%	1	15-May-14	15-May-14					
NB574C	Backfill - UPR-100-N-6 (166 BCMs)	0%	1	19-May-14*	19-May-14					
NB517C	Backfill - 100-N-36 (5 BCMs)	0%	16	20-May-14*	17-Jun-14					
NB552C	Backfill - UPR-100-N-18 (30,000 BCMs)	0%	8	02-Jun-14*	12-Jun-14					
NB555C	Backfill - UPR-100-N-20 (1,840 BCMs)	0%	8	02-Jun-14	12-Jun-14					
NB559C	Backfill - UPR-100-N-24 (129 BCMs)	0%	8	02-Jun-14	12-Jun-14					
NB560C	Backfill - UPR-100-N-25 (0 BCMs)	0%	1	09-Jun-14	09-Jun-14					
NB573C	Backfill - UPR-100-N-5 (0 BCMs)	0%	1	09-Jun-14	09-Jun-14					
NB528C	Backfill - 116-N-2 (32,074 BCMs)	0%	5	09-Jun-14*	16-Jun-14					
NB586C	Backfill - 100-N-68 (788.65 BCM)	0%	1	16-Jun-14*	16-Jun-14					
NB537C	Backfill - 124-N-3 (15 BCMs)	0%	1	18-Jun-14*	18-Jun-14					
NB548C	Backfill - UPR-100-N-12 (0 BCMs)	0%	16	19-Jun-14*	17-Jul-14					
NB519C	Backfill - 100-N-38 (0 BCMs)	0%	16	19-Jun-14*	17-Jul-14					
NB514C	Backfill - 100-N-32 (0 BCMs)	0%	16	19-Jun-14*	17-Jul-14					
NB575C	Backfill - UPR-100-N-7 (2,624 BCMs)	0%	16	19-Jun-14*	17-Jul-14					
NB531C	Backfill - 118-N-1 (11,549 BCMs)	0%	16	19-Jun-14*	17-Jul-14					

Actual Work    Milestone    Actual Milestone  
 Remaining Work    % Complete

Data Date: 10-Feb-14

Activity ID	Activity Name	% Compl	RD	Start	Finish	2014														
						February	March	April	May	June	July	August								
NB563C	Backfill - UPR-100-N-3 (0 BCMs)	0%	16	19-Jun-14*	17-Jul-14															
NB567C	Backfill - UPR-100-N-35 (170 BCMs)	0%	16	19-Jun-14*	17-Jul-14															
NB513C	Backfill - 100-N-31 (0 BCMs)	0%	16	19-Jun-14*	17-Jul-14															
NB569C	Backfill - UPR-100-N-39 (0 BCMs)	0%	16	19-Jun-14*	17-Jul-14															
NB546C	Backfill - UPR-100-N-10 (0 BCMs)	0%	16	19-Jun-14*	17-Jul-14															
NB593C	Backfill - 100-N-28 (2504 BCM)	0%	2	10-Jul-14*	14-Jul-14															
NB592C	Backfill - 100-N-62 (3563 BCM)	0%	2	10-Jul-14*	14-Jul-14															
NB550C	Backfill - UPR-100-N-14 (182 BCMs)	0%	1	21-Jul-14*	21-Jul-14															
NB577C	Backfill - UPR-100-N-9 (97 BCMs)	0%	1	21-Jul-14*	21-Jul-14															
NB536C	Backfill - 124-N-2 (1554 BCMs)	0%	1	21-Jul-14*	21-Jul-14															
NB507C	Backfill - 100-N-23 (3588 BCMs)	0%	1	22-Jul-14*	22-Jul-14															
NB510C	Backfill - 100-N-26 (276 BCMs)	0%	1	23-Jul-14*	23-Jul-14															
NB511C	Backfill - 100-N-29 (0 BCMs)	0%	1	24-Jul-14*	24-Jul-14															
NB508C	Backfill - 100-N-24 (0 BCMs)	0%	1	24-Jul-14*	24-Jul-14															
NB518C	Backfill - 100-N-37 (0 BCMs)	0%	1	24-Jul-14*	24-Jul-14															
NB512C	Backfill - 100-N-30 (0 BCMs)	0%	1	24-Jul-14*	24-Jul-14															
NB544C	Backfill - 600-340 (126.60 BCM)	0%	4	24-Jul-14	30-Jul-14															
NB578C20	Backfill - 100-N-63 AUW	0%	5	28-Jul-14*	04-Aug-14															
NB578C10	Backfill - 100-N-63 (14,272 BCMs)	0%	5	28-Jul-14*	04-Aug-14															
NB588C	Backfill - 100-N-84.6 (12,721 BCM)	0%	2	29-Jul-14	30-Jul-14															
NB581C	Backfill - 100-N-81 (659.98 BCM)	0%	1	31-Jul-14	31-Jul-14															
NB584C	Backfill - 100-N-84.2 (15,545 BCM)	0%	5	18-Aug-14	25-Aug-14															
NB587C	Backfill - 100-N-84.5 (72,786 BCM)	0%	5	19-Aug-14	26-Aug-14															
NB556C	Backfill - UPR-100-N-21 (0 BCMs)	0%	3	20-Aug-14*	25-Aug-14															
NB557C	Backfill - UPR-100-N-22 (0 BCMs)	0%	1	20-Aug-14*	20-Aug-14															
NB553C	Backfill - UPR-100-N-19 (5617BCMs)	0%	2	20-Aug-14*	21-Aug-14															
NB572C	Backfill - UPR-100-N-43 (9 BCMs)	0%	1	20-Aug-14*	20-Aug-14															
NB558C	Backfill - UPR-100-N-23 (0 BCMs)	0%	1	20-Aug-14*	20-Aug-14															
NB565C	Backfill - UPR-100-N-31 (5,872 BCMs)	0%	1	21-Aug-14	21-Aug-14															
NB596C	Backfill - 120-N-4 (618.71 BCM)	0%	1	21-Aug-14	21-Aug-14															
NB590C	Backfill - 100-N-91 (3.87 BCM)	0%	1	21-Aug-14	21-Aug-14															
NB570C	Backfill - UPR-100-N-4 (63 BCMs)	0%	1	21-Aug-14*	21-Aug-14															
NB5A3C	Backfill - 100-N-101 (126.6 BCM)	0%	1	21-Aug-14	21-Aug-14															
NB576C	Backfill - UPR-100-N-8 (28 BCMs)	0%	1	21-Aug-14*	21-Aug-14															
NB506C	Backfill - 100-N-22 (866 BCMs)	0%	1	25-Aug-14*	25-Aug-14															
NB542C	Backfill - 1908 N (1,732 BCMs)	0%	1	26-Aug-14*	26-Aug-14															
NB539C	Backfill - 124-N-9 (0 BCMs)	0%	1	27-Aug-14*	27-Aug-14															
NB534C	Backfill - 124-N-1 (597BCMs)	0%	1	28-Aug-14*	28-Aug-14															
NB595C	Backfill - 100-N-100 (85.69 BCM)	0%	1	28-Aug-14	28-Aug-14															
NB522C	Backfill - 100-N-59 (95 BCMs)	0%	1	02-Sep-14*	02-Sep-14															
RT20N37	Backfill - 120-N-7 (145 BCMs)	0%	1	03-Sep-14*	03-Sep-14															

Actual Work     Milestone     Actual Milestone  
 Remaining Work     % Complete

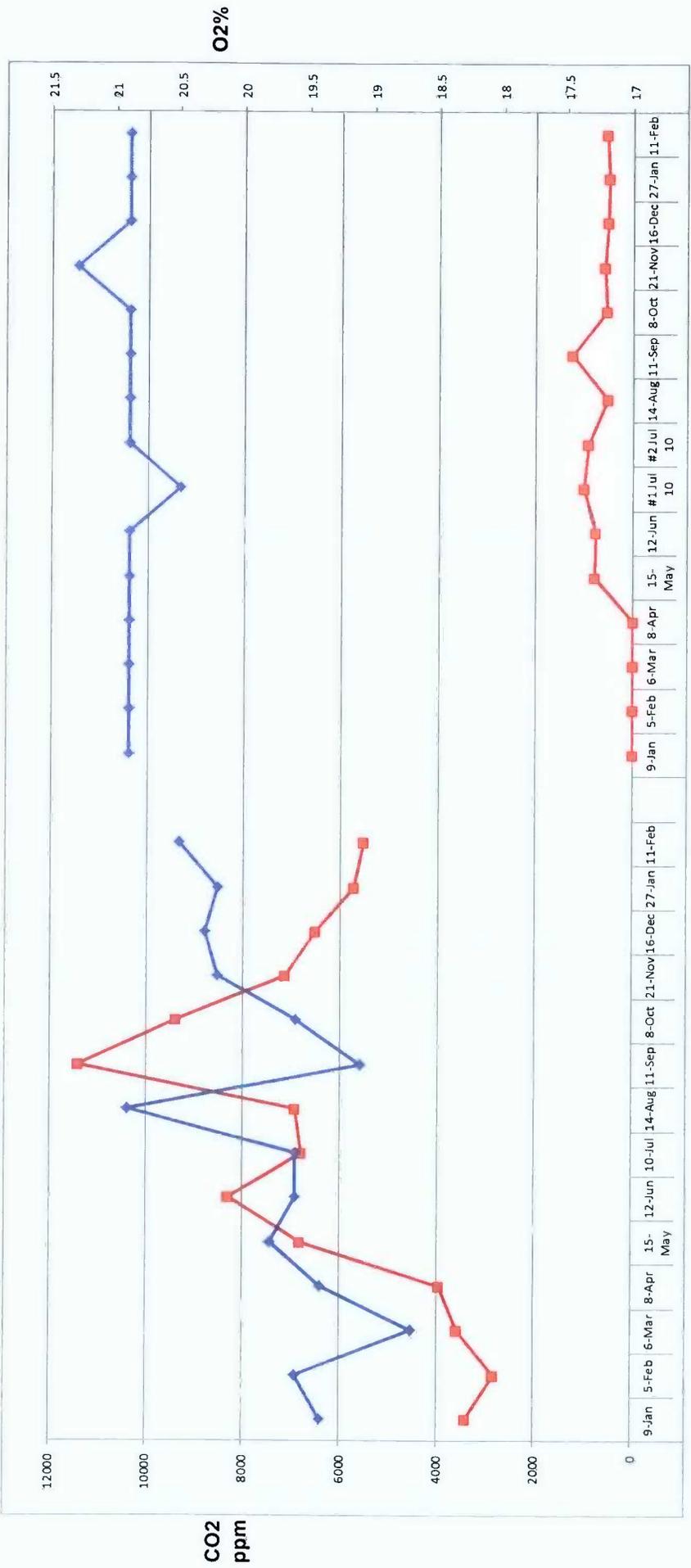
Data Date: 10-Feb-14

Activity ID	Activity Name	%	HD	Start	Finish	February 2014			March 2014			April 2014			May 2014	
						03	10	17	24	03	10	17	24	31	07	14
NB5B6C	Backfill - 100-N-84.4 (14,060 BCM)	0%	8	25-Sep-14*	08-Oct-14											
NB5C7C	Backfill - 100-N-104 (612 BCM)	0%	1	23-Oct-14	23-Oct-14											
NB5093C	Backfill - 100-N-97 (9.65 BCM)	0%	1	30-Oct-14	30-Oct-14											
NB591C	Backfill - 100-N-94 (49.11 BCM)	0%	2	18-Nov-14	19-Nov-14											
NB594C	Backfill - 100-N-99 (38.58 BCM)	0%	1	19-Nov-14	19-Nov-14											
NB583C	Backfill - 100-N-82	0%	1	18-Dec-14	18-Dec-14											
NB5A1C	Backfill - 100-N-93 (0 BCM)	0%	1	12-Jan-15	12-Jan-15											
NB5C3C	Backfill - 100-N-96 (2600 BCM)	0%	1	22-Jul-15	22-Jul-15											
NB5B2C	Backfill - 100-N-83 (20,659 BCM)	0%	5	22-Sep-15	29-Sep-15											
PROJMS3	100-N Backfill Complete	0%	0		29-Sep-15*											
NB5B6A30	Backfill - 100-N-107 (Final ROD)	0%	4	09-May-17	15-May-17											

 Actual Work   
  Milestone   
  Actual Milestone  
 Remaining Work   
  % Complete

Data Date: 10-Feb-14

# Attachment 10



**BIOVENT WELL SAMPLE RESULTS**

Well #	Date	CO2 ppm	O2%	CO2 ppm	O2%	CO2 ppm
199-N-171	9-Jan	19.4	19.6	3400	20.9	0
	5-Feb	19.6	18.7	2840	20.9	0
	6-Mar	18.7	19.4	3570	20.9	0
	8-Apr	19.4	19.8	3960	20.9	0
	15-May	19.8	19.6	6820	20.9	800
	12-Jun	19.6	19.6	8290	20.9	780
	10-Jul	19.6	20.9	6800	#1 Jul 10	1020
	14-Aug	20.9	19.1	6940	#2 Jul 10	920
	11-Sep	19.1	19.6	11400	14-Aug	530
	8-Oct	9380	20.2	7160	11-Sep	1250
	21-Nov	6520	20.3	6520	8-Oct	560
16-Dec	5720	20.2	5720	21-Nov	600	
27-Jan	5520	20.5	5520	16-Dec	530	
11-Feb				27-Jan	500	
				11-Feb	550	

O2%

CO2 ppm

# Attachment 11

174506

**^WCH Document Control**

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**From:** Saueressig, Daniel G  
**Sent:** Tuesday, February 04, 2014 9:41 AM  
**To:** ^WCH Document Control  
**Subject:** FW: 100-N OFFSITE APPROVAL REQUEST

Please provide a chron number. This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Einan, Dave [mailto:Einan.David@epa.gov]  
**Sent:** Tuesday, February 04, 2014 8:14 AM  
**To:** Saueressig, Daniel G  
**Cc:** Elliott, Wanda; Chance, Joanne C; Guzzetti, Christopher  
**Subject:** RE: 100-N OFFSITE APPROVAL REQUEST

There was a message waiting for me this morning. Burlington is acceptable for shipments through April 4, 2014.

Dave Einan  
509-376-3883

---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Monday, February 03, 2014 8:24 AM  
**To:** Einan, Dave  
**Cc:** Elliott, Wanda; Chance, Joanne C; Guzzetti, Christopher  
**Subject:** RE: 100-N OFFSITE APPROVAL REQUEST

Hi Dave, have your heard back from Burlington on the request below? The project would like to ship the waste this Thursday February 6, 2014.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Saueressig, Daniel G

2/4/2014

**Sent:** Thursday, January 09, 2014 11:58 AM  
**To:** Einan, David R  
**Cc:** Elliott, Wanda; Chance, Joanne C; Guzzetti, Christopher  
**Subject:** RE: 100-N OFFSITE APPROVAL REQUEST

Dave, the bunker oil at 100-N didn't make it on the November shipment. In addition, there are 2 110-gallon drums of unleaded gasoline contaminated soil that also need to be sent offsite to Burlington for treatment and disposal.

Can you let me know if Burlington is approved for acceptance of this waste through February 2014? I believe they are being scheduled for shipment in early February.

Thanks and give me a call if you have any questions.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Einan, Dave [<mailto:Einan.David@epa.gov>]  
**Sent:** Friday, November 15, 2013 8:01 AM  
**To:** Saueressig, Daniel G  
**Subject:** RE: 100-N OFFSITE APPROVAL REQUEST

Dan—

Sorry for the delay, I had missed your original email. Burlington is OK for shipments until January 14, 2014.

Dave Einan  
509-376-3883

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**From:** Saueressig, Daniel G [<mailto:dqsauere@wch-rcc.com>]  
**Sent:** Tuesday, November 12, 2013 1:51 PM  
**To:** Einan, Dave  
**Subject:** RE: 100-N OFFSITE APPROVAL REQUEST

Dave, I don't mean to bug you, but have you heard back from Burlington yet? We may still be able to get this waste on the 11/19 milk run shipment.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

. Daniel G  
October 31, 2013 2:29 PM  
R  
stopher; Elliott, Wanda; Chance, Joanne C  
I OFFSITE APPROVAL REQUEST

Dave, I'd like to request your approval to send some waste from 100-N offsite for treatment and disposal.

We have 7 55-gallon drums of bunker oil (approximately 285 gallons) and one 3.5 gallon poly container that holds an "Epley Standard Cell" that we'd like to ship offsite for treatment and disposal.

Plans are to ship the material to

Burlington Environmental, LLC  
20245 77th Avenue South  
Kent, WA 98032

RCRA ID No.: WAD991281767

We've tentatively scheduled a shipment date of November 19, 2013.

Let me know if you concur or if you have any questions.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

# Attachment 12

174439

**^WCH Document Control**

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**From:** Saueressig, Daniel G  
**Sent:** Monday, January 27, 2014 3:15 PM  
**To:** ^WCH Document Control  
**Subject:** FW: 100-N-84 ROAD CROSSING AGREEMENT  
**Attachments:** 100-N-84 road crossing paper.doc

Please provide a chron number (and include the attachment). This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Chance, Joanne C [mailto:joanne.chance@rl.doe.gov]  
**Sent:** Monday, January 27, 2014 1:59 PM  
**To:** Saueressig, Daniel G  
**Cc:** Biebrich, Ernest J; Elliott, Wanda  
**Subject:** RE: 100-N-84 ROAD CROSSING AGREEMENT

Hi Dan,

I concur also. Please document in UMM. Thanks.

Joanne C. Chance  
U.S. Department of Energy  
Office of Assistant Manager for River and Plateau  
825 Jadwin Ave / MSIN A3-04  
Richland, WA 99352  
(509) 376-0811

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**From:** Elliott, Wanda (ECY) [mailto:well461@ecy.wa.gov]  
**Sent:** Tuesday, January 21, 2014 2:22 PM  
**To:** Saueressig, Daniel G; Chance, Joanne C  
**Cc:** Biebrich, Ernest J  
**Subject:** RE: 100-N-84 ROAD CROSSING AGREEMENT

I concur with the sampling and backfill proposal.

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

1/29/2014



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**From:** Saueressig, Daniel G [<mailto:dgsauere@wch-rcc.com>]  
**Sent:** Tuesday, January 21, 2014 2:06 PM  
**To:** Elliott, Wanda (ECY); Chance, Joanne C  
**Cc:** Biebrich, Ernest J  
**Subject:** 100-N-84 ROAD CROSSING AGREEMENT

Wanda/Joanne, attached for your concurrence is an agreement to sample and immediately backfill selected portions of the 100-N-84 pipeline segments that are needed to maintain access to active remediation areas or have utility interferences that may necessitate immediate backfill after removal of the subject pipeline.

Let me know if you have any questions.

Thanks.

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

<< File: 100-N-84 road crossing paper.doc >>

## **REQUEST TO VERIFICATION SAMPLE AND BACKFILL IMMEDIATELY PORTIONS OF 100-N-84 PIPELINE SUBSITES THAT CROSS UNDER ESTABLISHED ROADWAYS**

Washington Closure Hanford (WCH) requests approval from the U.S. Department of Energy (DOE) and the Washington State Department of Ecology (Ecology) to verification sample and backfill immediately portions of the 100-N-84 pipeline subsites that cross under established roadways at the 100-N Area. To maintain the safe flow of traffic at the 100-N Area during continued remediation/loadout and backfilling activities, portions of the 100-N-84:4, 100-N-84:5, and 100-N-84:6 pipeline remediations will need to be sampled and backfilled ahead of the normal verification sampling/closeout process.

### **VERIFICATION SAMPLING AND ANALYSIS**

This paper describes the requirements for verification sampling the road crossing areas prior to backfilling. Verification sampling will be performed to support a determination that potential residual contaminant concentrations at the road crossings meet the cleanup criteria specified in the *Remedial Design Report/Remedial Action Work Plan for the 100-N Area* (100-N Area Remedial Design Report/RDR/RAWP) (DOE-RL 2013).

#### **Contaminants of Potential Concern**

##### **100-N-84:4**

The contaminants of potential concern (COPCs) identified in the *Work Instruction for Confirmatory Sampling of the 100-N-84:4, 100-N Area Steam and Condensate Pipelines* (WCH 2010a) included inductively coupled plasma (ICP) metals, mercury, hexavalent chromium, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), ion chromatograph (IC) anions, and nitrate/nitrite. Radiological activity and volatile organic compounds (VOCs) were not detected in the field during confirmatory sampling; therefore, radionuclides and VOCs were not added as COPCs for this site.

Because antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, molybdenum, nickel, selenium, zinc, hexavalent chromium, TPH, and PAH were detected above a remedial action goal (RAG) in the confirmatory samples, they are retained as site COPCs for verification sampling. Although not detected above a RAG, analysis for mercury will be requested. Additionally, beryllium, boron, cobalt, silver, and vanadium will be included in the expanded list of ICP metals.

The final list of analyses for verification sampling the 100-N-84:4 subsite includes ICP metals, mercury, hexavalent chromium, PAH, and TPH.

### **100-N-84:5**

The COPCs identified in the *Work Instruction for Confirmatory Sampling of the 100-N-84:5, 100-N Area Sanitary Pipelines* (WCH 2010b) included chromium (total), lead, mercury, hexavalent chromium, anions, pesticides, polychlorinated biphenyls (PCBs), and semivolatile organic compounds (SVOCs). No radiological activity or VOCs were detected in the field during the confirmatory sampling; therefore, radionuclides and VOCs were not included as site COPCs.

Confirmatory sampling results did not detect any contaminants above a RAG; however, only one test pit location was available to be excavated and sampled at that time. The 100-N-84:5 pipeline subsite was recommended for remove, treat, dispose (RTD) because the pipeline was part of an active sewer system.

In-process samples were collected during the 100-N-84:5 pipeline remediation. Chromium, lead, mercury, nickel, and zinc were detected above a RAG; therefore, they will be retained as site COPCs for verification sampling. Although hexavalent chromium was either undetected or detected below the RAG, it will be retained as a COPC for verification sampling. Multiple PAHs, aroclor-1254, and aroclor-1260 were detected above the groundwater and/or river protection RAG in samples collected from two manhole locations; however, the material collected from these locations is worst case and is not necessarily representative of the soil below the pipeline. Additionally, based on RESRAD modeling discussed in Appendix C of the 100-N Area RDR/RAWP (DOE-RL 2013) residual concentrations of these constituents are predicted to migrate less than 1 m (3.3 ft) vertically in 1,000 years (based on the lowest soil-partitioning coefficient of these contaminants [aroclor-1254] of 75.6 mL/g). The 100-N-84:5 subsite is fairly shallow and sufficient vadose would be available to show no migration to groundwater. Therefore, PAHs and PCBs are eliminated as site COPCs. TPH was also detected above the RAG; however, the soil sample location was co-located with the 100-N-84:2 pipeline subsite and is more likely attributed to the 100-N-84:2 subsite rather than the 100-N-84:5. Therefore, TPH is not considered a site COPC. While not considered site COPCs, antimony, arsenic, barium, beryllium, boron, cadmium, cobalt, copper, manganese, molybdenum, selenium, silver, and vanadium will be included in the expanded list of ICP metals.

Asbestos was detected in the in-process sample; therefore, asbestos will be included as a site COPC.

The final list of analyses for verification sampling the 100-N-84:5 subsite includes ICP metals, mercury, hexavalent chromium, and asbestos.

### **100-N-84:6**

Historical information suggest that various chemicals were utilized in the 100-N-84:6 source buildings including 109-N Heat Exchange Building, 105-N Reactor Building, 163-N Demineralization Plant, 182-N High-Lift Pump House, 183-N Filter plant, and 184-N Power House. The chemicals and uses include:

- Phosphoric, ascorbic, and citric acids, and potassium permanganate in the 109-N and 105-N Buildings decontamination processes
- Ammonium hydroxide, morpholine and lithium hydroxide to control cooling water pH
- Hydrazine to reduce oxygen concentrations in cooling water
- Sulfuric acid to regenerate the cation resin and sodium hydroxide to regenerate anion resin in the demineralizer plant
- Sodium sulfite as a deoxygenizing chemical for low pressure filter water in 182-N Building
- Sodium dichromate added to filtered and raw water supply for cooling coils in the 105-N Building

One focused sample was collected and analyzed for ICP metals, mercury, IC anions, hexavalent chromium, PAH, PCBs, and asbestos to evaluate the location underneath where the 100-N-84:6 pipeline remains in the sidewall of the 100-N-23 excavation (WCH 2013c). Of these, multiple PAHs and aroclor-1254 were detected above groundwater and/or river protection RAGs in the focused sample result.

Semivolatile organic compounds (SVOCs) were included in the COPCs for two associated waste sites of the 100-N-84:6 subsite: the 116-N-2 and 100-N-88 waste sites. Multiple SVOCs were detected above groundwater and/or river protection RAGs for the 116-N-2 verification sampling; however, the 100-N-84:6 pipeline segment located within the 116-N-2 sample design boundary was dispositioned with the 116-N-2 waste site (WCH 2013f). The characterization sampling result for the 100-N-88 waste site had no detected SVOCs, and the verification sampling detected only butylbenzylphthalate, a common laboratory contaminant, with the concentration much lower than the most stringent RAGs. In addition, the potential organic contaminants such as hydrazine and morpholine are reagents, which would have decomposed and are least likely to be found. Therefore, SVOCs are excluded from the COPCs for the 100-N-84:6 subsite.

The 100-N-84:6 subsite included several pipeline segments categorized as radioactive drains; however, they have been remediated and interim closed out with the 100-N-61:2 subsite (WCH 2013d), the 100-N-63:2 waste site (WCH 2013b), the waste sites located west of the 105-N/109-N Reactor (WCH 2013e) with exceptions of two radioactive drain segments within the footprint of the former 1722-N facility. The two segments were removed during removal of the 105-NA building and the 1722-N building (WCH 2013a), and will be dispositioned with the 100-N-66 waste site. Since there are no radioactive drains left for remediation, radionuclides were excluded from the COPCs for the 100-N-84:6 subsite.

The final list of analyses for verification sampling the 100-N-84:6 subsite include ICP metals, mercury, hexavalent chromium, IC anions, NO<sub>2</sub>/NO<sub>3</sub>, PAH, PCB, and TPH.

### **Sampling Plan**

One discrete grab sample will be collected from the approximate center of the road crossing area at the locations shown on Figure 1. The actual sample locations will be surveyed in the field at the time of sample collection and the coordinates will be recorded in the field logbook. The soil samples will be submitted to the laboratory for the analyses requested in Table 1 and analyzed using the methods identified in Table 2. Full protocol laboratory analysis will be requested for all samples. All sampling will be performed in accordance with ENV-1, *Environmental*

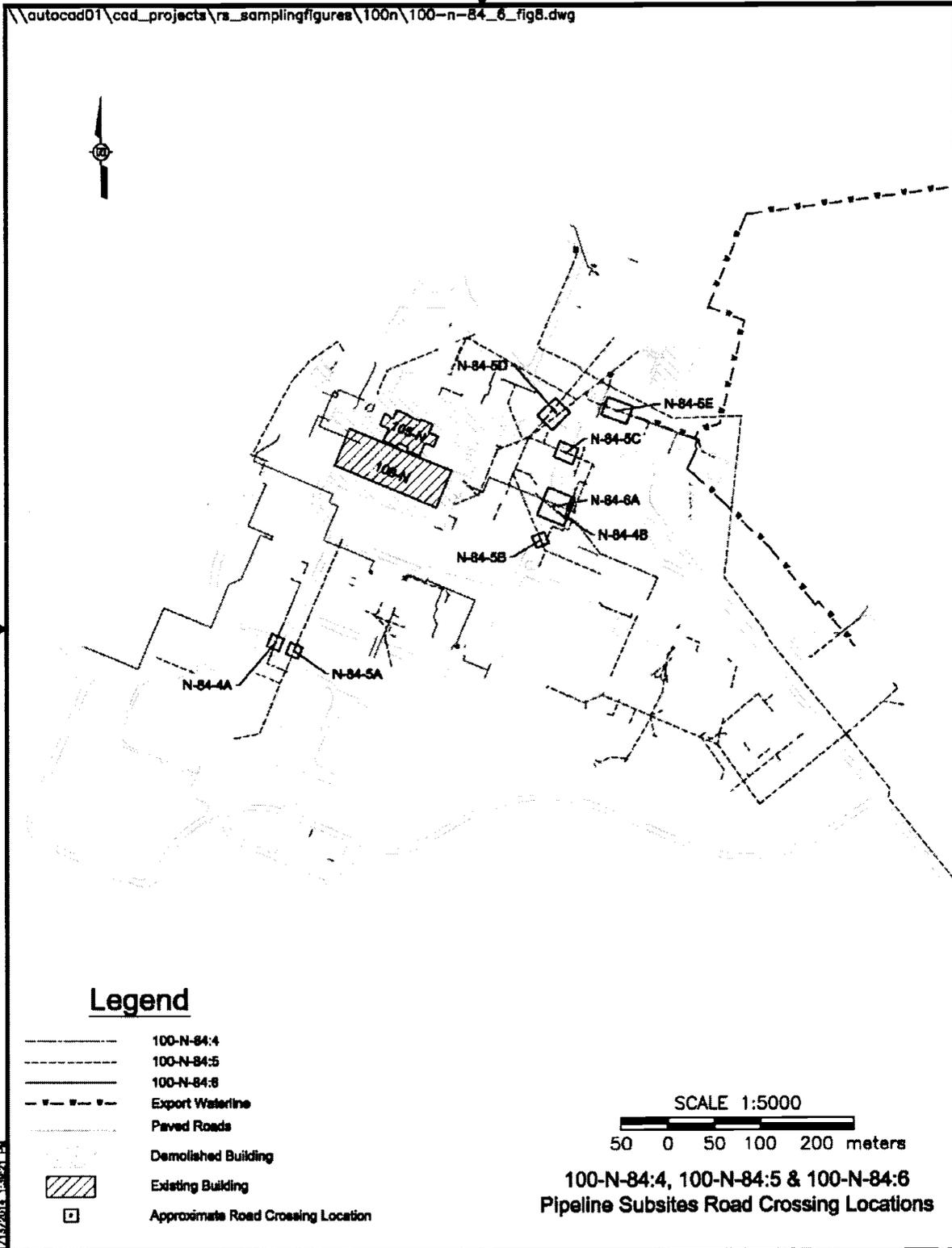
*Monitoring and Management* consistent with the *100-N Area Sampling and Analysis Plan for CERCLA Waste Sites* (100-N Area SAP) (DOE-RL 2006a) requirements.

Note: in the event that the road crossing does not need to be backfilled immediately, the sample will not be collected and the road crossing area will be included with the remaining segments of pipeline to be addressed in the normal verification work instruction process.

### **Data Evaluation**

The road crossing samples will not be evaluated in a statistical data set, but rather will be compared directly to the cleanup criteria specified in the 100-N Area RDR/RAWP (DOE-RL 2013). The data will be presented in the closure documents for each of the 100-N-84 pipeline subsites.

**Figure 1. 100-N-84:4, 100-N-84:5, and 100-N-84:6 Pipeline Subsites  
Road Crossing Locations.**



**Table 1. 100-N-84 Pipeline Subsite Road Crossing Sample Summary**

Pipeline Subsite	Sample Location	Sample Number	Sample Location Coordinates		Requested Analysis
			Northing	Easting	
100-N-84:4	N-84-4a	TBD	TBD	TBD	ICP metals <sup>a</sup> , mercury, hexavalent chromium, PAH, TPH
	N-84-4b	TBD	TBD	TBD	
100-N-84:5	N-84-5a	TBD	TBD	TBD	ICP metals <sup>a</sup> , mercury, hexavalent chromium, asbestos
	N-84-5b	TBD	TBD	TBD	
	N-84-5c	TBD	TBD	TBD	
	N-84-5d	TBD	TBD	TBD	
	N-84-5e	TBD	TBD	TBD	
100-N-84:6	N-84-6a	TBD	TBD	TBD	ICP metals <sup>a</sup> , mercury, hexavalent chromium, PAH, PCBs, TPH, IC anions <sup>b</sup> , NO <sub>2</sub> /NO <sub>3</sub>

<sup>a</sup> The expanded list of ICP metals will be performed to include antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total), cobalt, copper, lead, manganese, molybdenum, nickel, selenium, silver, vanadium, and zinc.

<sup>b</sup> The expanded list of IC anions will be performed to include bromide, fluoride, nitrate, nitrite, and phosphate.

**Table 2. Laboratory Analytical Methods.**

Analytical Method	Contaminants of Potential Concern
ICP metals <sup>a</sup> – EPA Method 6010	Metals
Mercury – EPA Method 7471	Mercury
Hexavalent chromium – EPA Method 7196	Hexavalent chromium
IC anions – EPA Method 300.0	Anions
NO <sub>2</sub> /NO <sub>3</sub> – EPA Method 353.2	Nitrate
PAH – EPA Method 8310	Polycyclic aromatic hydrocarbons
PCBs – EPA Method 8082	Aroclor-1254, aroclor-1260
TPH – EPA Method NWTPH-Dx	Total petroleum hydrocarbons

<sup>a</sup> The expanded list of ICP metals will be performed to include antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total), cobalt, copper, lead, manganese, molybdenum, nickel, selenium, silver, vanadium, and zinc.

EPA = U.S. Environmental Protection Agency

IC = ion chromatography

ICP = inductively coupled plasma

NWTPH-Dx = Northwest total petroleum – diesel range organics

PAH = polycyclic aromatic hydrocarbons

PCB = polychlorinated biphenyl

TPH = total petroleum hydrocarbons

## REFERENCES

- DOE-RL, 2006a, *100-N Area 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, 2013, *Remedial Design Report/Remedial Action Work Plan for the 100-N Area*, DOE/RL-2005-93, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- ENV-1, *Environmental Monitoring & Management*, Washington Closure Hanford, Richland, Washington.
- WCH, 2010a, *Work Instruction for Confirmatory Sampling of the 100-N-84:4, 100-N Area Steam Condensate Pipelines*, 0100N-WI-G0010, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2010b, *Work Instruction for Confirmatory Sampling of the 100-N-84:5, 100-N Area Sanitary Pipelines*, 0100N-WI-G0011, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013a, *105-NA Emergency Diesel Enclosure & 1722-N Decontamination Building Completion*, Attachment to Facility Status Change Form D4-100N-0048, Washington Closure Hanford, Richland, Washington.
- WCH, 2013b, *Cleanup verification Package for the 100-N-63:2; Pipelines Between 109N, 105N, 107N, 1310N, 1322N, 1926N and 36' process Drains to Outfall*, Attachment to Waste Site Reclassification Forms 2013-048, Washington Closure Hanford, Richland, Washington.
- WCH, 2013c, *Remaining Sites verification Package for the 100-N-23; Resin Disposal Pit Liquid Waste Site 1*, Attachment to Waste Site Reclassification Forms 2013-009, Washington Closure Hanford, Richland, Washington.
- WCH, 2013d, *Remaining Sites verification Package for the 100-N-28; Resin Disposal Pit Liquid Waste Site 2, 100-N-61:2; Water Treatment and Storage Facilities Underground Pipelines East of 109-N, 100-N-62; 100-N, 105-N, 109-N, 163-N, 182-N, 183-N, and 184-N Underground Pipelines, 100-N-64:2; Cooling Water Effluent Underground Pipelines East of 109-N*, Attachment to Waste Site Reclassification Forms 2012-102, 2012-103, 2012-104, 2012-105, Washington Closure Hanford, Richland, Washington.
- WCH, 2013e, *Remaining Sites verification Package for the 100-N-31; Unplanned Release on 30-inch Pipe Line, 100-N-32; 100-N-32 Unplanned Release on 25-centimeter (10-inch) Blowdown Pipeline #3, 100-N-38; Unplanned Release at 1300-N, 100-N-61:3; Water Treatment and Storage Facilities Underground Pipelines West of 109-N pipeline, 100-N-64:3; Cooling Water Effluent Underground Pipelines West of 109-N pipeline, 100-N-68;*

*N Basin Low Level Radioactive Water Spill; UPR-100-N-3, Spacer Disposal System Transport Line Leak, UPR-100-N-7; Ten-inch Radioactive Drain Return Line Leak, UPR-100-N-10; Lift Station Gravity Drain Line Leak, UPR-100-N-12; Spacer Transport Line Leak, UPR-100-N-39; Corridor 22 Suspect Liquid Unplanned Release, Attachment to Waste Site Reclassification Forms 2013-065, 2013-066, 2013-067, 2013-068, 2013-069, 2013-070, 2013-071, 2013-072, 2013-073, 2013-074, 2013-075, Washington Closure Hanford, Richland, Washington.*

WCH, 2013f, Remaining Sites verification Package for the *116-N-2; 1310-N Chemical Waste Storage Tank; 1310-N Waste Storage Area; The Golf Ball, UPR-100-N-5; 116-N-2 Radioactive Chemical Waste Treatment Storage Facility; 1310-N Chemical Waste Storage Tank Leak; UN-100-N-5, UPR-100-N-25; UN-100-N-25; Uncontrolled Venting of 1310-N Tank, Attachment to Waste Site Reclassification Forms 2013-015, 2013-016, 2013-017, Washington Closure Hanford, Richland, Washington.*

# Attachment 13

174416

**^WCH Document Control**

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**From:** Saueressig, Daniel G  
**Sent:** Monday, January 27, 2014 12:42 PM  
**To:** ^WCH Document Control  
**Subject:** FW: Additional Characterization and In- Situ Design for 100-N-85 -- thank you for your approval  
**Attachments:** Additional Characterization and In- Situ Design for 100-N-85 -- e-mail Approval Requested ; 100-N-85 Additional Characterization, In-Situ Bioremediation Design, and Decisional Flowchart for your Review

Please chron (and include the attachments). In addition, the attachments (emails) also include attachments that should be included. This email documents a regulatory agreement.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Chance, Joanne C [mailto:joanne.chance@rl.doe.gov]  
**Sent:** Monday, January 27, 2014 11:41 AM  
**To:** Elliott, Wanda  
**Cc:** Thompson, Mike; Carlson, Richard A; Neath, John P; Biebrich, Ernest J; Teynor, Thomas K; Boyd, Alicia; Saueressig, Daniel G  
**Subject:** RE: Additional Characterization and In- Situ Design for 100-N-85 -- thank you for your approval

Hi Wanda,

Thank you so much for your prompt, favorable response to our path forward plan for 100-N-85. We look forward to working with you on its implementation. I have attached the pertinent e-mails and submittals for the record and am requesting that WCH document this agreement with attachments at the next UMM. If you have any questions at this time, please let me know.

Joanne C. Chance  
U.S. Department of Energy  
Office of Assistant Manager for River and Plateau  
825 Jadwin Ave / MSIN A3-04  
Richland, WA 99352  
(509) 376-0811

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ecy.wa.gov]  
**Sent:** Thursday, January 23, 2014 6:10 AM  
**To:** Chance, Joanne C; Boyd, Alicia (ECY)

1/27/2014

**Cc:** Thompson, K M (Mike); Carlson, Richard A; Neath, John P; Biebrich, Ernest J; Teynor, Thomas K  
**Subject:** RE: Additional Characterization and In- Situ Design for 100-N-85 -- e-mail Approval Requested

Ecology concurs with the conceptual plan as proposed.

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



---

**From:** Chance, Joanne C [<mailto:joanne.chance@rl.doe.gov>]  
**Sent:** Tuesday, January 14, 2014 11:38 AM  
**To:** Elliott, Wanda (ECY); Boyd, Alicia (ECY)  
**Cc:** Thompson, K M (Mike); Carlson, Richard A; Neath, John P; Biebrich, Ernest J; Teynor, Thomas K  
**Subject:** Additional Characterization and In- Situ Design for 100-N-85 -- e-mail Approval Requested  
**Importance:** High

Hi Wanda and Alicia,

Below please find the edited decisional flow chart for 100-N-85 per your request. I also talked to Mike Thompson yesterday and provided him with the design for 100-N-85. He stated to me that he finds the usage of the groundwater well, should it be completed as such rather than as a bioventing well, to be acceptable to him for assisting in fulfilling RI/FS/final ROD commitments. RL plans to proceed with this additional work under the interim ROD. RL will work with you to clarify the remedy language of the ESD via a note to the Administrative Record as you indicated was your preference. Since we would like to resolve this issue as soon as possible, please indicate if there is any other information that you need in order to provide the requested e-mail approval of the submitted conceptual plan/flowchart/in-situ design as soon as possible. Thank you for your prompt assistance to date.

Joanne C. Chance  
U.S. Department of Energy  
Office of Assistant Manager for River and Plateau  
825 Jadwin Ave / MSIN A3-04  
Richland, WA 99352  
(509) 376-0811

---

**From:** Thompson, Wendy S [<mailto:WSTHOMPS@wch-rcc.com>]  
**Sent:** Wednesday, January 08, 2014 4:48 PM

**To:** Chance, Joanne C  
**Cc:** Neath, John P; Carlson, Richard A  
**Subject:** 100-N-85 Flow chart update

Hi Joanne,

Here is an update to the flow chart that indented the last three bullets as "sub bullets".

Let me know if you need anything additional on this.

Thanks,  
Wendy

## **^WCH Document Control**

---

**From:** Chance, Joanne C  
**Sent:** Tuesday, January 14, 2014 11:38 AM  
**To:** Elliott, Wanda; Boyd, Alicia  
**Cc:** Thompson, Mike; Carlson, Richard A; Neath, John P; Biebrich, Ernest J; Teynor, Thomas K  
**Subject:** Additional Characterization and In- Situ Design for 100-N-85 -- e-mail Approval Requested

**Importance:** High

**Attachments:** 1-8-14\_revised bioremediation flow chart.pdf

Hi Wanda and Alicia,

Below please find the edited decisional flow chart for 100-N-85 per your request. I also talked to Mike Thompson yesterday and provided him with the design for 100-N-85. He stated to me that he finds the usage of the groundwater well, should it be completed as such rather than as a bioventing well, to be acceptable to him for assisting in fulfilling RI/FS/final ROD commitments. RL plans to proceed with this additional work under the interim ROD. RL will work with you to clarify the remedy language of the ESD via a note to the Administrative Record as you indicated was your preference. Since we would like to resolve this issue as soon as possible, please indicate if there is any other information that you need in order to provide the requested e-mail approval of the submitted conceptual plan/flowchart/in-situ design as soon as possible. Thank you for your prompt assistance to date.

Joanne C. Chance  
U.S. Department of Energy  
Office of Assistant Manager for River and Plateau  
825 Jadwin Ave / MSIN A3-04  
Richland, WA 99352  
(509) 376-0811

---

**From:** Thompson, Wendy S [mailto:WSTHOMPS@wch-rcc.com]  
**Sent:** Wednesday, January 08, 2014 4:48 PM  
**To:** Chance, Joanne C  
**Cc:** Neath, John P; Carlson, Richard A  
**Subject:** 100-N-85 Flow chart update

Hi Joanne,

Here is an update to the flow chart that indented the last three bullets as "sub bullets".

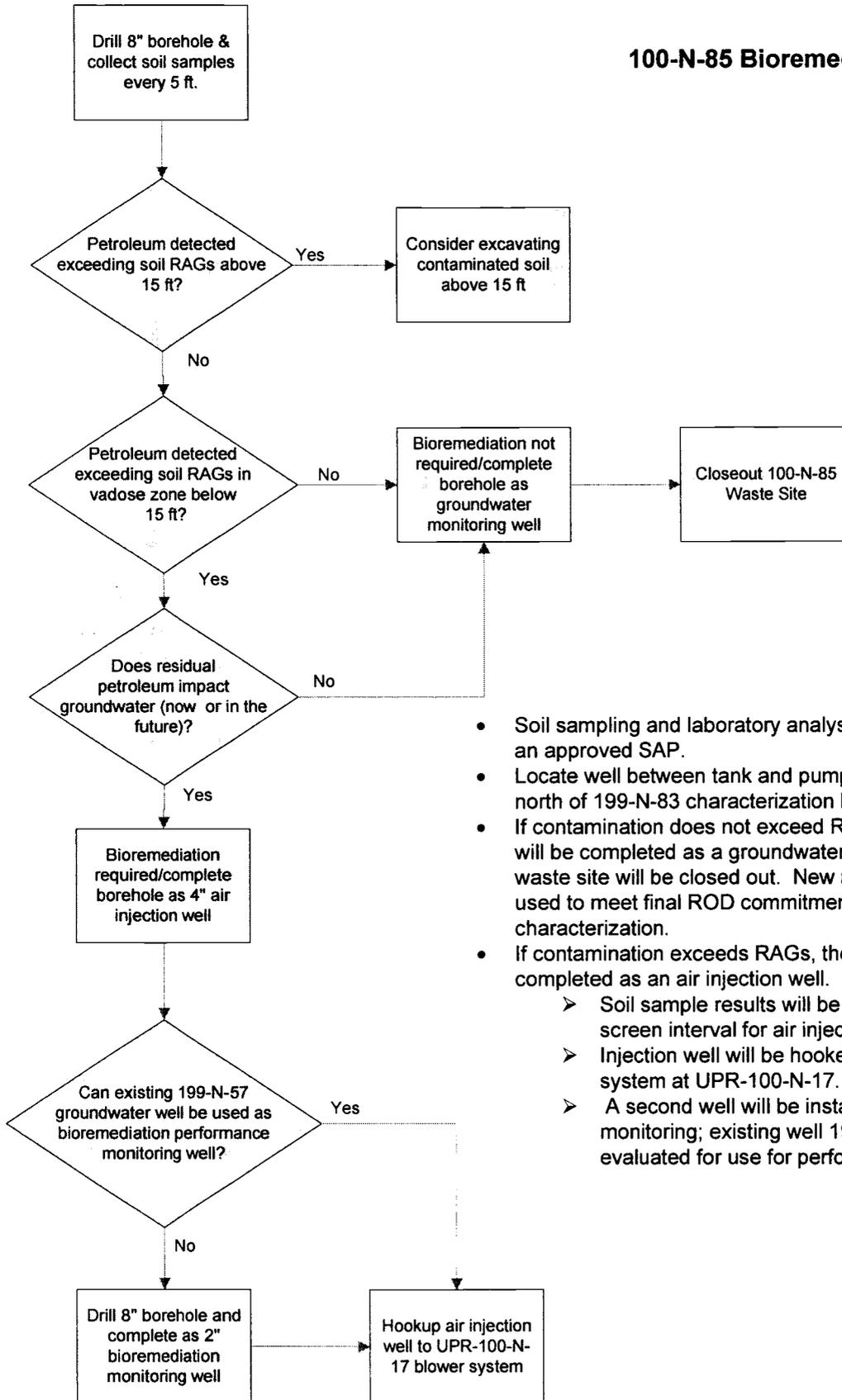
Let me know if you need anything additional on this.

Thanks,  
Wendy



1-8-14\_revised  
bioremediation ...

## 100-N-85 Bioremediation



- Soil sampling and laboratory analyses will be specified in an approved SAP.
- Locate well between tank and pump location; slightly north of 199-N-83 characterization borehole.
- If contamination does not exceed RAGs, then borehole will be completed as a groundwater monitoring well and waste site will be closed out. New monitoring well will be used to meet final ROD commitments for additional characterization.
- If contamination exceeds RAGs, then borehole will be completed as an air injection well.
  - Soil sample results will be used to determine well screen interval for air injection well.
  - Injection well will be hooked up to existing blower system at UPR-100-N-17.
  - A second well will be installed for performance monitoring; existing well 199-N-57 will be evaluated for use for performance monitoring.

## ^WCH Document Control

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**From:** Chance, Joanne C  
**Sent:** Monday, January 06, 2014 12:01 PM  
**To:** Elliott, Wanda; Yokel, Jerel  
**Cc:** Carlson, Richard A; Neath, John P; Thompson, Wendy S; Saueressig, Daniel G; Teynor, Thomas K  
**Subject:** 100-N-85 Additional Characterization, In-Situ Bioremediation Design, and Decisional Flowchart for your Review

**Importance:** High

**Attachments:** 30\_bio-rem design figure FIGURE 1 (1).pdf; revised bioremediation flow chart.pdf; RE: 100-N-85 White Paper; Figure 2\_Process Flow Diagram.pdf



30\_bio-rem design  
figure FIGUR...



revised  
bioremediation flow ct



RE: 100-N-85 White  
Paper

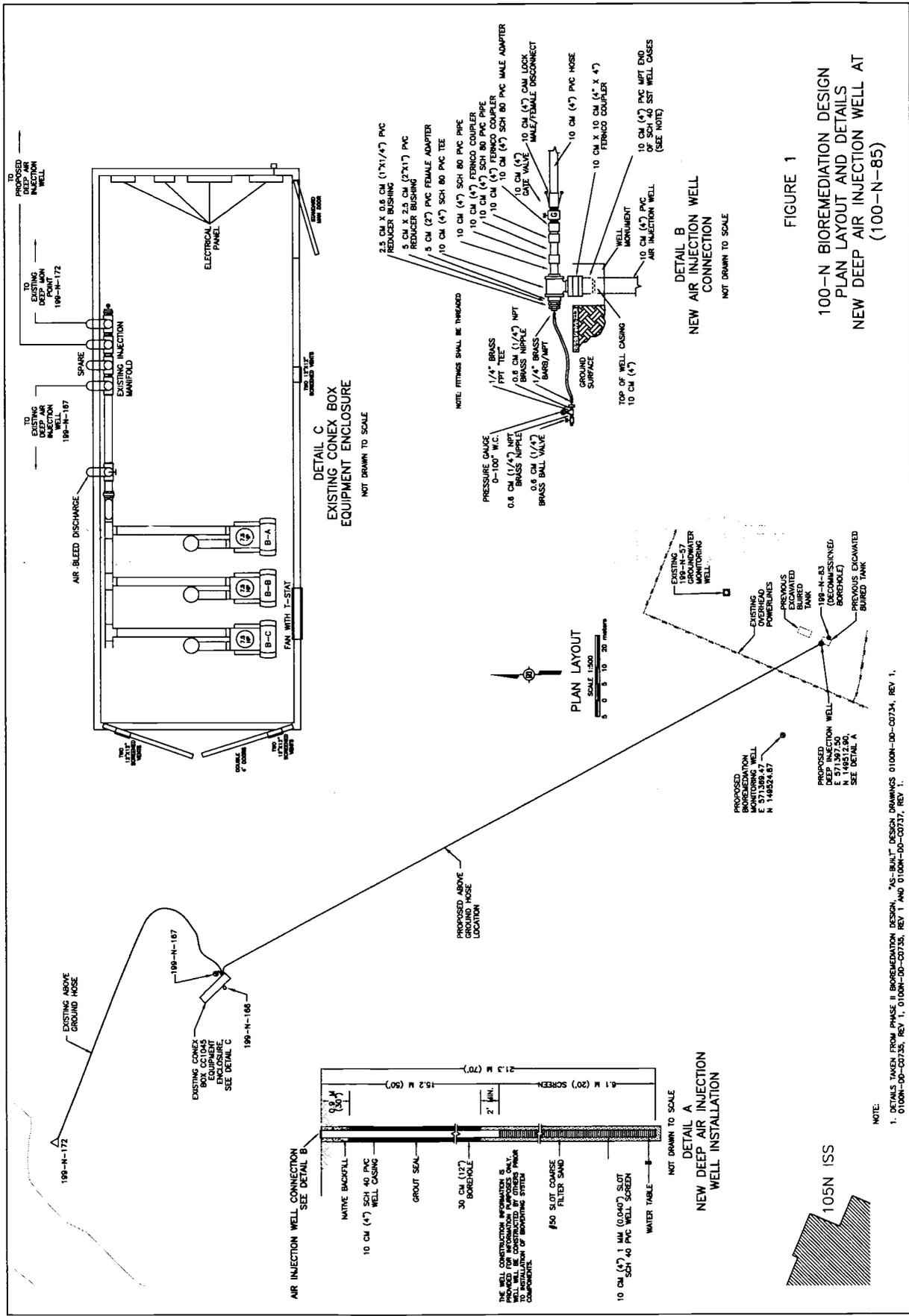


Figure 2\_Process  
Flow Diagram....

Hi Wanda and Jerry,

Attached please find a proposed additional characterization plan for the 100-N-85 waste site, which would culminate in the attached proposed in-situ bioremediation design should the site fail to meet remedial action objectives. The existing UPR-100-N-17 in-situ bioremediation system has the capacity to connect an additional injection well to it. Hence, please consider UPR 100-N-17's prior approved design, performance monitoring plan, etc. as part of this design. We would like to review these items with you at tomorrow's Interface Meeting if possible. In addition, RL finds Ecology's proposal to utilize the referenced new groundwater monitoring well in fulfilling RI/FS/PP commitments as acceptable. RL has not yet determined when the work will be conducted. At this time, RL requests Ecology's review and acceptance of the decisional flowchart, characterization plan, and in-situ bioremediation design. If tomorrow is not a favorable time to discuss, could you please propose alternative times this week that you and Jerry are available? Thank you so much for your expedited reviews. We look forward to working with you to obtain concurrence on the path forward. Please contact me if you have questions or concerns.

Joanne C. Chance  
U.S. Department of Energy  
Office of Assistant Manager for River and Plateau  
825 Jadwin Ave / MSIN A3-04  
Richland, WA 99352  
(509) 376-0811

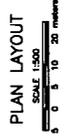


**DETAIL C  
EXISTING CONEX BOX  
EQUIPMENT ENCLOSURE**  
NOT DRAWN TO SCALE

**DETAIL B  
NEW AIR INJECTION WELL  
CONNECTION**  
NOT DRAWN TO SCALE

**DETAIL A  
NEW DEEP AIR INJECTION  
WELL INSTALLATION**  
NOT DRAWN TO SCALE

**FIGURE 1  
100-N BIOREMEDIATION DESIGN  
PLAN LAYOUT AND DETAILS  
NEW DEEP AIR INJECTION WELL AT  
(100-N-85)**



PROPOSED BIOREMEDIATION DEEP INJECTION WELL  
E 51487.50  
N 148224.87  
SEE DETAIL A

EXISTING BIOWATER MONITORING WELL

EXISTING OVERHEAD POWERLINES  
PREVIOUSLY EXCAVATED AND REPAIRED TANK  
100-N-83 (DECOMMISSIONED BOREHOLE)  
PREVIOUSLY EXCAVATED BURIED TANK

PROPOSED ABOVE GROUND HOSE LOCATION

EXISTING ABOVE GROUND HOSE

100-N-167  
100-N-164  
100-N-172

TO EXISTING DEEP AIR INJECTION WELL 100-N-172  
TO PROPOSED BIOREMEDIATION DEEP INJECTION WELL  
TO EXISTING BIOWATER MONITORING WELL

- NOTE:
1. DETAILS TAKEN FROM PHASE II BIOREMEDIATION DESIGN, "AS-BUILT" DESIGN DRAWINGS 0100N-00-C0734, REV 1, 0100N-00-C0735, REV 1, 0100N-00-C0736, REV 1 AND 0100N-00-C0737, REV 1.

## **^WCH Document Control**

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**From:** Elliott, Wanda  
**Sent:** Monday, December 30, 2013 3:38 PM  
**To:** Chance, Joanne C  
**Cc:** Thompson, Wendy S; Carlson, Richard A; Boyd, Alicia; Menard, Nina; Neath, John P; Yokel, Jerel; Ayres, Jeffrey M; Saueressig, Daniel G  
**Subject:** RE: 100-N-85 White Paper  
**Attachments:** image003.png

We have reviewed the "no action" proposal for the 100-N-85 fuel station waste site and feel at this time that more characterization is needed before a "no action" scenario can be approved. Our main issue is the data being used to support the "no action" proposal is the same data that supports 2 other very different actions for the same site, namely RTD and bioremediation. This site was added to the IROD via ESD for RTD, the RIFS which calls for bioremediation after the final ROD is signed, and now no action. Both former determinations (RTD and bioremediation) were made due to believed or known contamination at depth. Given that there has been no new data to show that contamination does not occur at depth, and thus support the "no action" proposal we recommend more characterization.

Now as a counter proposal: we could punt the site to the final ROD as the RIFS proposes and complete a groundwater monitoring well in this vicinity and use the data for characterization. One well drilled in this area could serve numerous purposes: 1) to determine if petroleum contamination is present, 2) if contamination is present act as a bioventing well, and 3) if no contamination exists act as a groundwater monitoring well.

Let us know if our counter proposal works for you and if there are any comments, questions, or want further discussion.

Thanks,

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

**From:** Neath, John P [mailto:john.neath@rl.doe.gov]  
**Sent:** Thursday, December 12, 2013 4:56 PM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Thompson, Wendy S; Chance, Joanne C; Carlson, Richard A  
**Subject:** RE: 100-N-85 White Paper

I'm forwarding the attached proposal on 100-N-85 for so you can take an opportunity to look over it in advance of a meeting that Wendy intends to arrange for next week. Joanne will be available to discuss Monday or Tuesday.

**John Neath,**  
River Corridor Closure Project  
Richland Operations Office  
U. S. Dept of Energy  
(509)372-0649

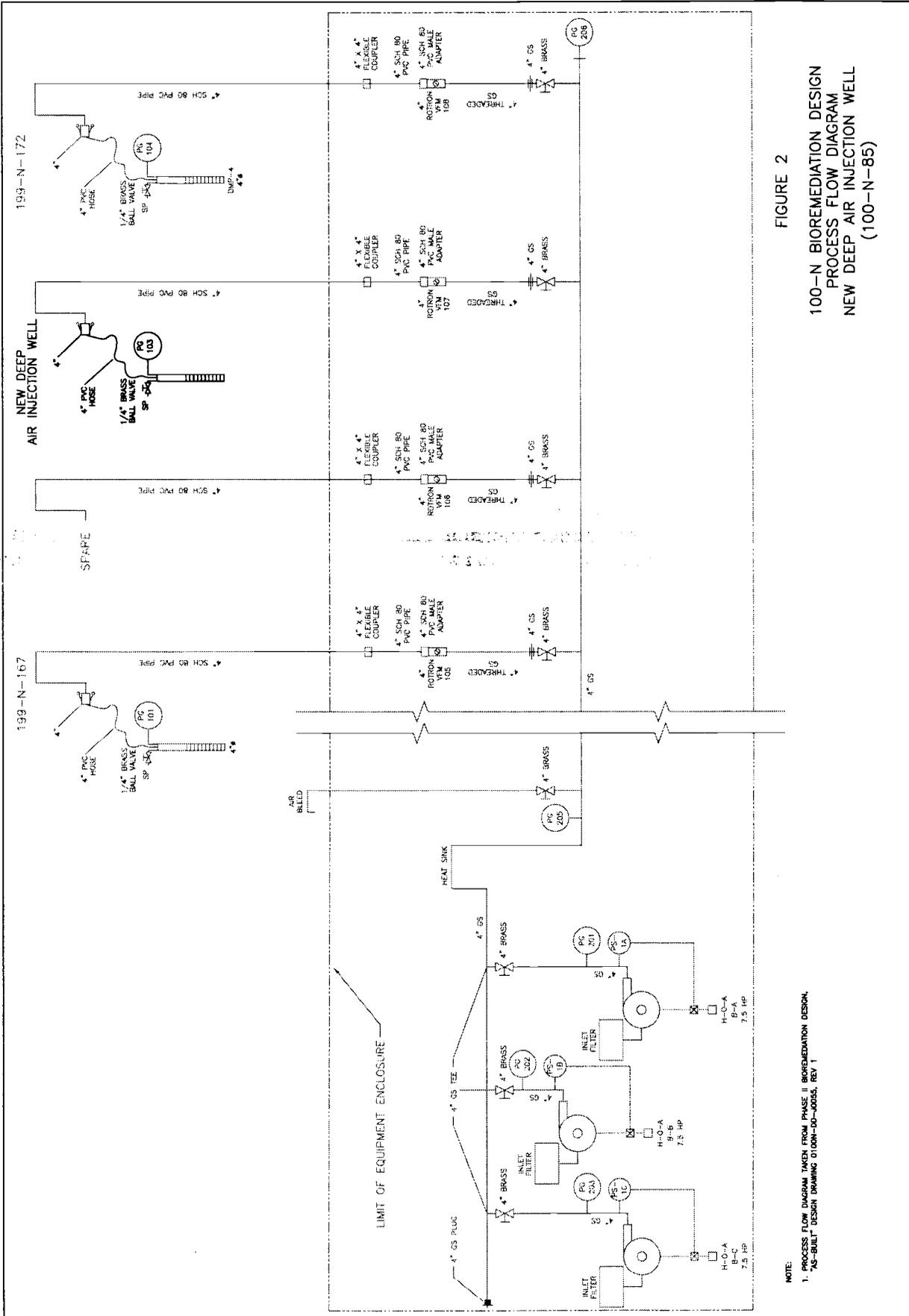
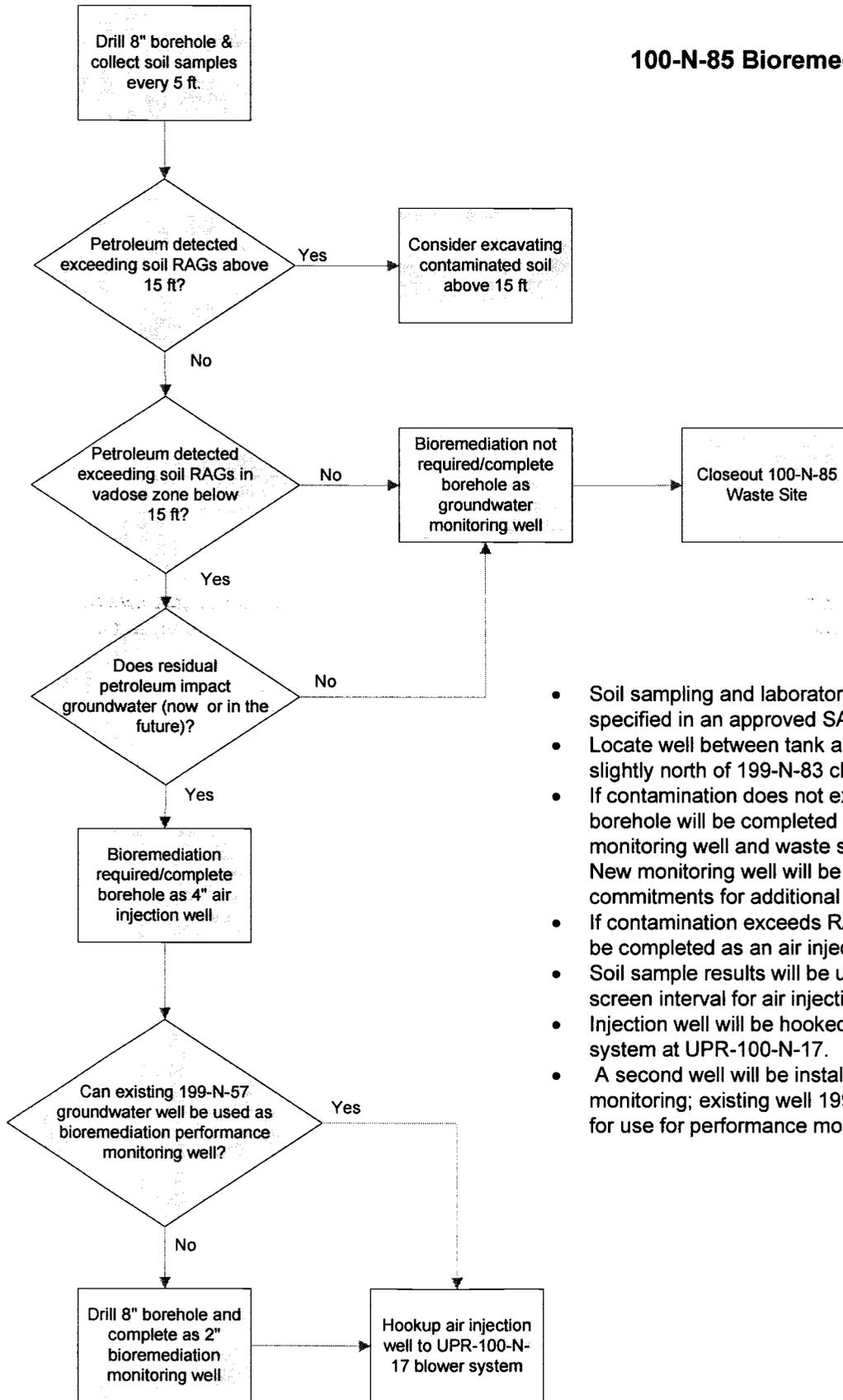


FIGURE 2  
 100-N BIOREMEDIATION DESIGN  
 PROCESS FLOW DIAGRAM  
 NEW DEEP AIR INJECTION WELL  
 (100-N-85)

NOTE:  
 1. PROCESS FLOW DIAGRAM TAKEN FROM PHASE II BIOREMEDIATION DESIGN.  
 "AS-BUILT" DESIGN DRAWING 0100N-00-0005, REV 1

## 100-N-85 Bioremediation



- Soil sampling and laboratory analyses will be specified in an approved SAP.
- Locate well between tank and pump location; slightly north of 199-N-83 characterization borehole.
- If contamination does not exceed RAGs, then borehole will be completed as a groundwater monitoring well and waste site will be closed out. New monitoring well will be used to meet final ROD commitments for additional characterization.
- If contamination exceeds RAGs, then borehole will be completed as an air injection well.
- Soil sample results will be used to determine well screen interval for air injection well.
- Injection well will be hooked up to existing blower system at UPR-100-N-17.
- A second well will be installed for performance monitoring; existing well 199-N-57 will be evaluated for use for performance monitoring.

# Attachment 14

174388

**^WCH Document Control**

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**From:** Capron, Jason M  
**Sent:** Wednesday, January 22, 2014 9:58 AM  
**To:** ^WCH Document Control  
**Cc:** Habel, Leonard D; Saueressig, Daniel G  
**Subject:** FW: 100-N-84:2 Sample Area 3 TPH contamination  
Please chronicle.

---

**From:** Chance, Joanne C [mailto:joanne.chance@rl.doe.gov]  
**Sent:** Tuesday, January 21, 2014 5:17 PM  
**To:** Capron, Jason M  
**Cc:** Elliott, Wanda  
**Subject:** RE: 100-N-84:2 Sample Area 3 TPH contamination

Hi Jason,

RL concurs. Thanks everyone.

Joanne C. Chance  
U.S. Department of Energy  
Office of Assistant Manager for River and Plateau  
825 Jadwin Ave / MSIN A3-04  
Richland, WA 99352  
(509) 376-0811

---

**From:** Capron, Jason M [mailto:jmcapron@wch-rcc.com]  
**Sent:** Tuesday, January 21, 2014 9:57 AM  
**To:** Chance, Joanne C  
**Subject:** RE: 100-N-84:2 Sample Area 3 TPH contamination

Joanne-

Could I please get your concurrence too so that I can use this for WIDS documentation?

Thanks,

Jason

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ECY.WA.GOV]  
**Sent:** Tuesday, January 21, 2014 5:58 AM  
**To:** Capron, Jason M; Chance, Joanne C  
**Cc:** Howell, Theresa Q; Thompson, Wendy S; Biebrich, Ernest J  
**Subject:** RE: 100-N-84:2 Sample Area 3 TPH contamination

Ecology concurs with the proposed action.

*Wanda Elliott*  
(509) 372-7904

1/22/2014

Environmental Scientist  
Nuclear Waste Program  
Washington State Department of Ecology



---

**From:** Capron, Jason M [<mailto:jmcapron@wch-rcc.com>]  
**Sent:** Thursday, January 16, 2014 10:11 AM  
**To:** Elliott, Wanda (ECY); Chance, Joanne C  
**Cc:** Howell, Theresa Q; Thompson, Wendy S; Biebrich, Ernest J  
**Subject:** 100-N-84:2 Sample Area 3 TPH contamination

Wanda-

Thanks again for the good discussion the other day; I just wanted to follow-up with an e-mail as promised. We're recommending that the TPH contamination within 100-N-84:2, Sample Area 3 (located on the southern side of the bioventing island) be administratively moved to the UPR-100-N-17 site. This would allow for an easier integration with future design efforts for the deeper diesel contamination at that site. While I don't want to completely presume the future selected remedy, the ultimate decision for the more shallow Bunker C-type contamination (which is still in the deep zone) should be able to be bounded within the any remedy selected for the deeper diesel contamination. This offers some potential savings in administrative costs and design planning for DOE relative to creating a new discovery site. With your concurrence, we'll add some discussion to both 100-N-84:2 and UPR-100-N-17 in WIDS to capture the disposition, as well as include discussion in the future 100-N-84:2 RSVP.

We'd be happy to have any additional discussion of how the collective site can be addressed moving forward.

Thanks,

Jason

# Attachment 15

174314

**^WCH Document Control**

---

**From:** Saueressig, Daniel G  
**Sent:** Monday, January 13, 2014 12:26 PM  
**To:** ^WCH Document Control  
**Subject:** FW: DEEP ZONE BACKFILL AT N  
**Attachments:** 100N Master Deep Backfill Areas Zone 1 Backfill (1).pdf

Please provide a chron number (and include the attachment). This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ECY.WA.GOV]  
**Sent:** Monday, January 13, 2014 10:45 AM  
**To:** Saueressig, Daniel G  
**Cc:** Chance, Joanne C; Biebrich, Ernest J; Jakubek, Joshua E  
**Subject:** RE: DEEP ZONE BACKFILL AT N

**I concur with the deep zone backfill areas as proposed. As agreed to please ensure direct exposure and ground water protection criteria are/will be met after placement is completed.**

Thanks,

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



---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Monday, January 13, 2014 10:40 AM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Chance, Joanne C; Biebrich, Ernest J; Jakubek, Joshua E  
**Subject:** DEEP ZONE BACKFILL AT N

1/14/2014

Hi Wanda, we are planning to start backfilling some of the deep zone sites tomorrow. Waste Site Reclassification Form 2013-051 for the 100-N-61:4 requires Ecology approval for the locations we plan to place the PAH contaminated overburden. The attached map depicts deep zone locations planned for this overburden. Also, all of these locations have over 3 meters of vadose zone between the base of the excavation and the groundwater as required by the approved Waste Site Reclassification Form.

Let me know if you concur with the locations we plan to place this overburden in the deep zone.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

<< File: 100N Master Deep Backfill Areas Zone 1 Backfill (1).pdf >>



# Attachment 16

174313

**^WCH Document Control**

---

**From:** Saueressig, Daniel G  
**Sent:** Monday, January 13, 2014 12:23 PM  
**To:** ^WCH Document Control  
**Subject:** FW: REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS  
**Attachments:** request to backfill without additional sampling - final.doc

Please provide a chron number (and include the attachment). This email documents a regulatory agreement.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Chance, Joanne C [mailto:joanne.chance@rl.doe.gov]  
**Sent:** Monday, January 13, 2014 11:33 AM  
**To:** Elliott, Wanda; Saueressig, Daniel G  
**Cc:** Biebrich, Ernest J; Boyd, Alicia  
**Subject:** RE: REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS

I also concur with the attached backfill proposal. Please document in UMM. Thanks.

Joanne C. Chance  
U.S. Department of Energy  
Office of Assistant Manager for River and Plateau  
825 Jadwin Ave / MSIN A3-04  
Richland, WA 99352  
(509) 376-0811

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ecy.wa.gov]  
**Sent:** Monday, January 13, 2014 10:07 AM  
**To:** Saueressig, Daniel G; Chance, Joanne C  
**Cc:** Biebrich, Ernest J; Boyd, Alicia (ECY)  
**Subject:** RE: REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS

I concur with the attached backfill proposal.

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



---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Monday, January 13, 2014 8:12 AM  
**To:** Elliott, Wanda (ECY); Chance, Joanne C  
**Cc:** Biebrich, Ernest J; Boyd, Alicia (ECY)  
**Subject:** RE: REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS

I accidentally sent the wrong file. See attached and let me know if you approve of our proposal.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

<< File: request to backfill without additional sampling - final.doc >>

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. Daniel G  
January 09, 2014 6:31 AM  
; Chance, Joanne C  
; Ernest J; Boyd, Alicia  
REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS

Wanda/Joanne, the Request to Backfill 100-N-84 Pipeline Segments agreement has been revised to address your comments below and a couple comments from Joanne, see attached. Let me know if you concur with the agreement and I'll document your approval at the next UMM.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

<< File: request to backfill without additional sampling 1-8-14.doc >>

---

ida (ECY) [mailto:well461@ECY.WA.GOV]  
December 31, 2013 1:41 PM  
Daniel G; Chance, Joanne C  
; Ernest J; Boyd, Alicia  
REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS

I have the following comments:

Under Segment I- this segment refers to 100-N-84:4, yet the very last sentence calls out 100-N-84:6. I believe what you meant was 84:4. Please check.

1/14/2014

Figure 2. Shows most of the 100-N-84:2 pipelines as Section DD. There has been discussion of creating 3 decision units for closeout of the 100-N-84:2 pipeline.

If we take the most western portion of the pipeline (as shown in the attached Figure 2) and designate it as decision unit 1 (this is what I designated as "comment 2a leave") I would agree that this section of Segment DD could be backfilled without further sampling.

The section of DD that is collocated with UPR-100-N-42 should be designated along with "Section W" on Figure 1 and text revised accordingly. It can then be backfilled with UPR-100-N-42 without further sampling.

The section by the golf ball should not be designated DD and should be verification sampled/addressed with the rest of 100-N-84:2.

If you have any comments/concerns please let me know.

<< File: 100-N-84 pipeline closure proposal\_12-30-2013.pdf >>

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

<< OLE Object: Picture (Device Independent Bitmap) >>

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**From:** Saueressig, Daniel G [<mailto:dgsauere@wch-rcc.com>]  
**Sent:** Thursday, December 19, 2013 3:54 PM  
**To:** Elliott, Wanda (ECY); Chance, Joanne C  
**Cc:** Biebrich, Ernest J  
**Subject:** REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS

Wanda/Joanne, per our discussions in past interface meetings, attached is a request to backfill 100-N-84 pipeline segments for your review and approval. The project was hoping to start some backfill activities around January 19, 2014 and we'd like to request your approval by January 3, 2014. Since our next interface meeting isn't until January 7, let me know if you want to meet separately to discuss this proposal.

FYI, it's a large (13MB) file! If I don't talk to you before the 25th, Merry Christmas!

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

<< File: request to backfill without additional sampling.doc >>

**REQUEST TO BACKFILL 100-N-84 PIPELINE SEGMENTS  
REMOVED DURING PREVIOUS REMEDIATIONS WITHOUT FURTHER  
VERIFICATION SAMPLING**

Washington Closure Hanford (WCH) requests approval from the U.S. Department of Energy (DOE) and the Washington State Department of Ecology (Ecology) to backfill segments of the 100-N-84 pipeline subsites without further verification sampling. The segments of the 100-N-84 pipelines addressed in this paper were removed during previous waste site remediation and/or facility demolition and have been disposed at the Environmental Restoration Disposal Facility (ERDF) or were agreed to be left in place per "84:5 Mobile Office Pipeline Request" (WCH 2013n) and "100-N-84:5 Pipeline Request for No Action Proposal" (WCH 2013o). The waste sites that the pipelines crossed through have been verification sampled and reclassified as interim closed out and/or sampled per FSCF/D4 requirements and are ready to be backfilled.

Approval to backfill the segments of pipeline discussed in this paper would allow backfill activities to begin at the interim closed out waste sites prior to the 100-N-84 pipeline subsites being reclassified as interim closed out. Additionally, approval to backfill the pipeline segments will enhance backfilling schedule efficiencies and allow for placement of designated soil stockpiles requiring depth placement restrictions in the deep zone. The justification to backfill the segments of 100-N-84 pipeline subsites without further verification sampling are provided below. Figure 1 and Figure 2 shows the 100-N-84 pipeline segments discussed in this paper overlaid on the interim closed out waste sites.

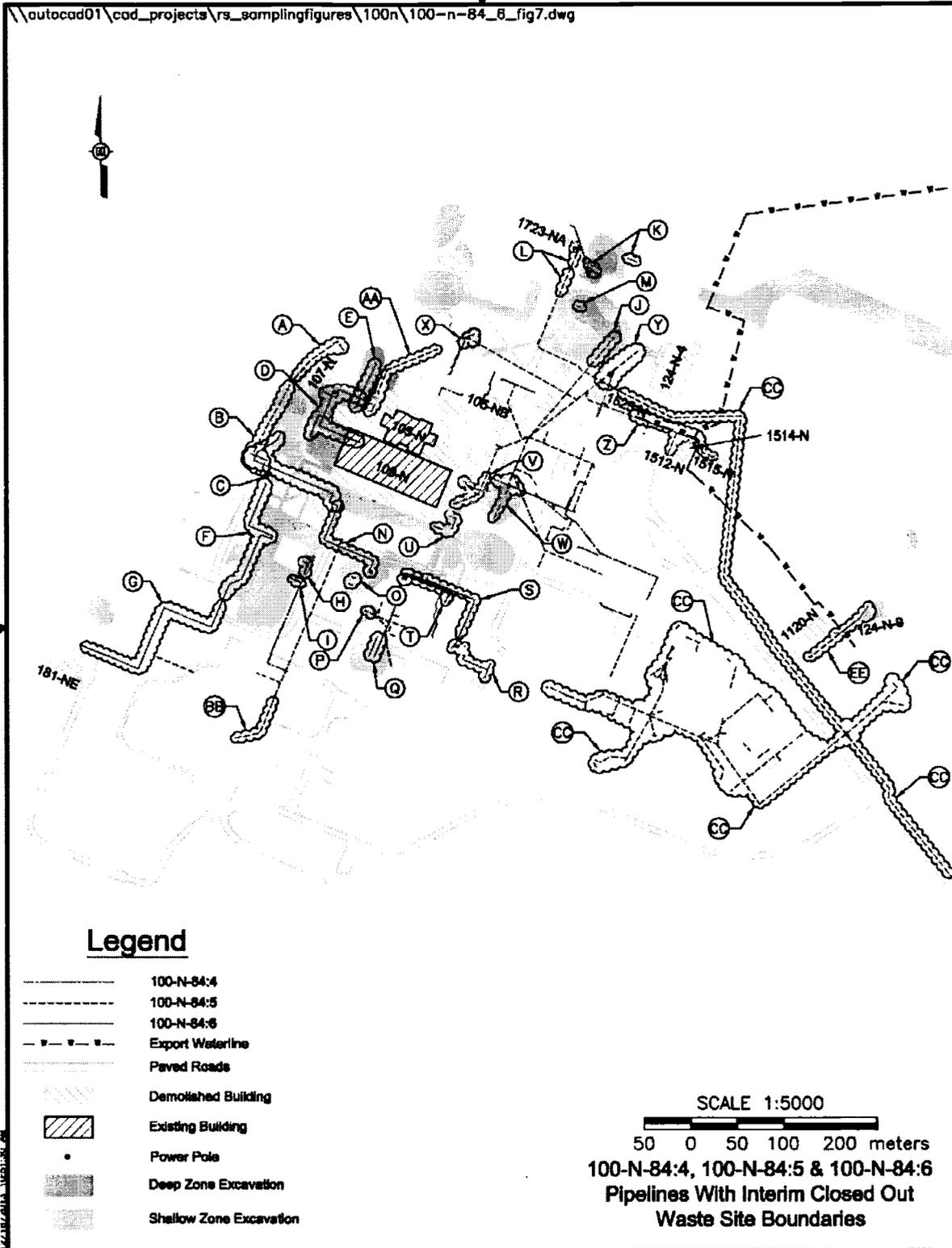
**SEGMENT A**

This segment of the 100-N-84:5 subsite was a 15 cm (6 in) storm sewer line that ran from the 100-N-72, 107-N East Area Water Runoff catch basin and drained to the 100-N-76, 181-N Pumphouse French Drain. The french drain received steam condensate and later excess storm water. The 100-N-72 is a "Not Accepted" waste site and the 100-N-76 is a "Rejected" waste site. Per the "100-N-84:5/6 Proposal to Leave Segments in Place" agreement (WCH 2013a), this segment of the 100-N-84:5 subsite will not be removed and will remain in place. No verification sampling will be conducted. This segment of the 100-N-84:5 subsite will be discussed in the closure document for the 100-N-84:5 subsite.

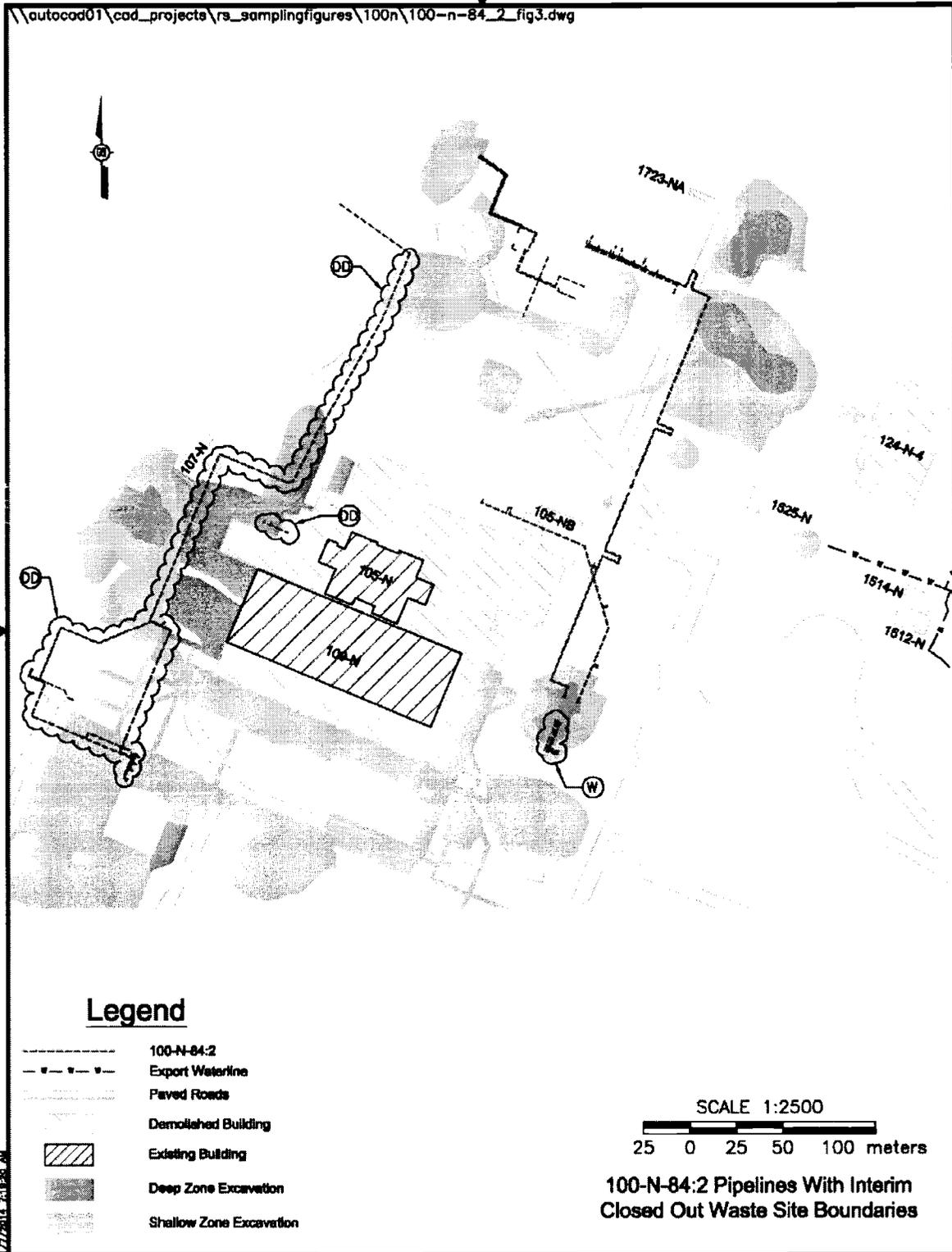
**SEGMENT B**

This segment of the 100-N-84:5 subsite is a continuation of Segment A above which has been approved to remain in place. During the remediation of the 100-N-57 waste site, a segment of the 100-N-84:5 subsite was removed and disposed at ERDF (WCH 2013b). Verification soil samples were collected from the 100-N-57 waste site and the site has been reclassified as interim closed out. The site has been partially backfilled. Because this segment of the 100-N-84:5 pipeline was a storm sewer line that originated from a catch basin (rejected waste site 100-N-76) and fed into a french drain (not accepted waste site 100-N-72) (WCH 2013a), no additional verification sampling will be conducted along this segment of the 100-N-84:5 subsite. The removal and disposal of this pipeline segment will be discussed in the closure document for the 100-N-84:5 subsite.

Figure 1. 100-N-84:4, 100-N-84:5, and 100-N-84:6 Subsites Segments with Interim Closed Out Waste Site Boundaries Overlaid.



**Figure 2. 100-N-84:2 Subsite Segments with Interim Closed Out Waste Site Boundaries Overlaid.**



## SEGMENT C

During the demolition and removal of the 100-N river structures, a segment of the 100-N-84:6 subsite was removed and disposed at the ERDF. This pipeline segment was sampled per the 100-N FR South River Road Agreement (WCH 2011). No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

## SEGMENT D

Several segments of the 100-N-84:6 subsite were removed and disposed during the remediation of the waste sites west of the 105-N/109-N Reactor. Because of the close proximity of the waste sites west of the reactor and the pipelines traversing through these waste sites, the verification sampling design included these segments of pipeline. The *Remaining Sites Verification Package for the 100-N-31, 100-N-32, 100-N-38, 100-N-61:3, 100-N-64:3, 100-N-68, UPR-100-N-3, UPR-100-N-7, UPR-100-N-10, UPR-100-N-12, and UPR-100-N-39* (WCH 2013c) indicates that the 100-N-84 subsites will be addressed in a separate closure document, but further verification sampling will not be performed. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

## SEGMENT E

During the removal of the 118-N-1, a segment of the 100-N-84:6 pipeline was removed and disposed at the ERDF. The *Remaining Sites Verification Package for the 118-N-1, 1303-N Spacer Silos Waste Site* (WCH 2013d) indicates that the samples collected to support the closure of the waste site will be used to support closure of this segment of pipeline. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

## SEGMENT F

During the removal of the 100-N-61:4, a segment of the 100-N-84:6 pipeline was removed and disposed at the ERDF. The *Remaining Sites Verification Package for the 100-N-61:4, Water Treatment and Storage Facilities Underground Pipelines South of 182-N Subsite, South Staging Pile, and 100-N Pipelines Overburden* (WCH 2013e) indicates that the 100-N-84:6 pipeline segments within the remediation boundary were included in the verification sampling design and were sampled for closeout along with the 100-N-61:4 pipelines. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

## SEGMENT G

This segment of the 100-N-84:6 subsite is a 15 cm (6 in) gravity fed chlorine pipeline. No residual liquid was expected to be contained in the pipe. The pipeline was abandoned years ago and any remaining chlorine in the pipeline would have volatilized away. Per the "100-N-84:5/6 Proposal to Leave Segments in Place" agreement (WCH 2013a), this segment of the 100-N-84:6 subsite will not be removed and will remain in place. No verification sampling will be conducted. This segment of pipeline will be discussed in the closure document for the 100-N-84:6 subsite.

## **SEGMENT H**

During the remediation of the 124-N-2 waste site, a segment of the 100-N-84:5 subsite was removed and disposed. The *Remaining Sites Verification Package for the 124-N-2 Waste Site* (WCH 2013f) indicates that the 100-N-84:5 segment will be addressed with the 124-N-2 waste site verification sampling. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:5 subsite.

## **SEGMENT I**

During the removal of the 100-N-61:4 subsite, a segment of the 100-N-84:4 subsite was removed and disposed at the ERDF. The *Remaining Sites Verification Package for the 100-N-61:4, Water Treatment and Storage Facilities Underground Pipelines South of 182-N Subsite, South Staging Pile, and 100-N Pipelines Overburden* (WCH 2013e) indicates that the 100-N-84:4 pipeline segments within the remediation boundary were included in the verification sampling design and were sampled for closeout along with the 100-N-61:4 pipelines. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:4 subsite.

## **SEGMENT J**

During the remediation of the 116-N-2 waste site, a segment of the 100-N-84:5 subsite was removed and disposed. The *Remaining Sites Verification Package for the 116-N-2, UPR-100-N-5, and UPR-100-N-25 Waste Sites* (WCH 2013g) indicates that additional contaminants of potential concern (COPCs) were added to the verification samples within the 116-N-2 excavation to support closure of the 100-N-84:5 segments that were removed. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:5 subsite.

## **SEGMENT K**

During the remediation of the UPR-100-N-4, UPR-100-N-8, and UPR-100-N-31 waste sites, segments of the 100-N-84:6 subsite were removed and disposed at ERDF. The pipelines consisted of a 2", 3" and 4" radioactive drain lines. Although the sampling design and closure documentation (WCH 2013h) did not specifically address the pipeline subsite, the waste sites were a result of unplanned releases from the piping and a sump within the 1322-N/NA buildings. Samples collected to support the closure of the UPR-100-N-4, UPR-100-N-8, and UPR-100-N-31 waste sites will be used to support the closure of this segment of the 100-N-84:6 pipeline subsite. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results for the unplanned release waste sites will be discussed in the closure document for the 100-N-84:6 subsite.

A small segment of the 100-N-84:6 subsite located east of the UPR-100-N-4, UPR-100-N-8, and UPR-100-N-4 excavation boundary was removed and disposed during the 116-N-1 remediation. The 116-N-1 is interim closed out and the site has been backfilled. No additional verification samples will be collected for this segment of the 100-N-84:6 subsite. The removal and disposal of this segment of pipeline will be discussed in the closure document for the 100-N-84:6 subsite.

Additionally, a segment of the 100-N-84:8, 100-N Area Unidentified Pipelines within Planned Excavations subsite was also removed. The 100-N-84:8 is described as unidentified, various diameter, pipelines that are believed to be less than 4 m (13 ft) and are within planned remedial action excavations. No additional verification samples will be collected for this segment of pipeline. The removal of this pipeline segment will be included in the closure document for the 100-N-84:8 subsite.

#### **SEGMENT L**

This segment of the 100-N-84:5 pipeline is located near the active 199-N-56 groundwater monitoring well. Per the "100-N-84:5/6 Proposal to Leave Segments in Place" agreement (WCH 2013a), this segment of the 100-N-84:5 subsite will not be removed and will remain in place. No verification sampling will be conducted. This segment of pipeline will be discussed in the closure document for the 100-N-84:5 subsite.

A portion of this same segment of pipeline was removed and disposed during the remediation of the 100-N-63:2 subsite. This is a continuation of the pipeline segment described above. A test pit was excavated along this segment of pipeline during the confirmatory sampling campaign; the results were used to support the justification for leaving a segment of this pipeline in place (WCH 2013a). No additional verification samples will be collected from this segment of pipeline. The removal and disposal of this pipeline and the test pit sampling results will be discussed in the closure document for the 100-N-84:5 subsite.

#### **SEGMENT M**

During the remediation of the 116-N-2 waste site, a segment of the 100-N-84:6 subsite was removed and disposed. The *Remaining Sites Verification Package for the 116-N-2, UPR-100-N-5, and UPR-100-N-25 Waste Sites* (WCH 2013g) does not specifically state that the 100-N-84:6 pipeline segment is included in the sampling design; however, the 100-N-84:6 COPCs were included in the list for the 116-N-2. The verification sampling conducted for the 116-N-2 will be used to support closure of this segment of the 100-N-84:6 subsite. No additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

Additionally, a segment of the 100-N-84:8, 100-N Area Unidentified Pipelines within Planned Excavations subsite was also removed. The 100-N-84:8 is described as unidentified, various diameter, pipelines that are believed to be less than 4 m (13 ft) and are within planned remedial action excavations. No additional verification samples will be collected for this segment of pipeline. The removal of this pipeline segment will be included in the closure document for the 100-N-84:8 subsite.

#### **SEGMENTS N, S, T, U, and V**

During the remediation of the 100-N-61:1 and 100-N-64:1 subsites, segments of the 100-N-84:5 and 100-N-84:6 subsites were removed and disposed at the ERDF. The *Remaining Sites Verification Package for the 100-N-61:1, 100-N-64:1, 100-N-24, 100-N-29, 100-N-30, 100-N-37, and 100-N-53* indicates that although the 100-N-84 pipelines were not the subject of the sampling design and closure document, any additional COPCs associated with the 100-N-84 pipelines were considered for inclusion as COPCs for the 100-N-61:1 grouping for verification

sampling (WCH 2013i). Samples to support closure of the 100-N-61:1 grouping will be used to support closure of these segments of the 100-N-84:5 and 100-N-84:6 and no additional verification samples will be collected.

The northern most segment of 100-N-84:6 "Segment U" was removed with the 100-N-61:2 pipeline remediation. The *Remaining Sites Verification Package for the 100-N-28, 100-N-61:2, 100-N-62, and 100-N-64:2 Sites* (WCH 2013p) indicates that the samples collected to support closure of the 100-N-61:2 grouping will be used to support closure of these segments of the 100-N-84:6 and no additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

## **SEGMENT O**

Segments of the 100-N-84:6 subsite were removed and disposed with the 120-N-3 waste site. The *Remaining Sites Verification Package for the 120-N-3, 163-N Neutralization Pit and French Drain* (WCH 2013j) states that two pipelines from the 163-N facility day tanks entered the neutralization pit and french drain. The pipeline segments include a 6" acid drain line that fed into a french drain and a 6" caustic drain line that fed into the chemical drain pit; both are part of the 120-N-3 waste site. These pipeline segments are located entirely within the excavated waste site. The COPCs associated with the 100-N-84:6 drain lines are the same as the 120-N-3 waste site. Samples collected to support the closure of the 120-N-3 waste site are sufficient to support closure of the pipeline segments; therefore, no additional verification samples will be collected. The removal and disposal of this pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

## **SEGMENT P**

The *Remaining Sites Verification Package for the 124-N-1, 100-N Sanitary Sewer System No. 1 Waste Site* (WCH 2013k) indicates that the portion of the 100-N-84:5 sanitary pipeline that connected the septic tank with the cesspool was also removed and disposed at the ERDF. Verification samples were collected to support the closure of the 124-N-1 waste site. Because the COPCs for the waste site are the same as this segment of the 100-N-84:5 subsite and this segment of 100-N-84:5 subsite is within the 124-N-1 excavation boundary, the 124-N-1 verification sampling will be used to support closure of this segment of the 100-N-84:5 subsite. No additional verification samples will be collected for this segment of the pipeline subsite. The removal and disposal of the pipeline segment and the sampling results will be discussed in the closure document for the 100-N-84:5.

## **SEGMENT Q**

Segments of the 100-N-84:6 subsite that were located within the 100-N-23 waste site excavation boundary were removed and disposed at ERDF. The segments consisted of a 0.61 m (24 in) drain pipe and a 7.6 cm (3 in) drain pipe which fed into the 100-N-23 waste site. The *Remaining Sites Verification Package for the 100-N-23, Resin Disposal Pit Liquid Waste Site 1* (WCH 2013l) indicates that the pipelines are not included as part of the 100-N-23 waste site. However, the COPCs for the 100-N-23 waste site would be the same for the drain pipes that fed into the 100-N-23 waste site; therefore the verification sampling conducted to support closure of the 100-N-23 waste site are sufficient to support closure of the pipeline segments within the

100-N-23 boundary. No additional verification samples will be collected for these segments of the 100-N-84:6 pipelines. The removal and disposal of these pipeline segments and the sampling results will be discussed in the closure document for the 100-N-84:6 subsite.

## SEGMENT R

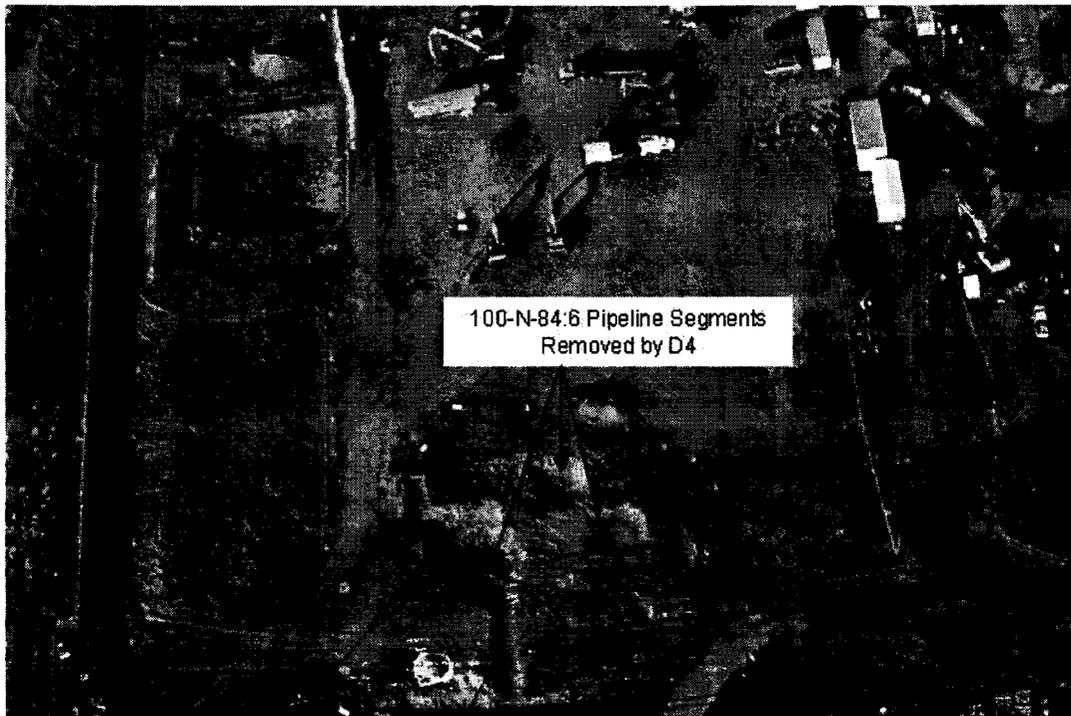
During the demolition and removal of the 108-N facility, the deactivation, decontamination, decommissioning, and demolition (D4) project removed segments of the 100-N-84:6 subsite. The segments of the 100-N-84:6 subsite included a 5.1 cm (2 in) sodium hydroxide and 5.1 cm (2 in) sulfuric acid pipeline. The remediated pipeline excavations are visible in the bottom half of the November 2008 aerial photograph provided in Figure 3. The D4 project has backfilled the area. Samples were collected along the pipeline trench and analyzed for ICP metals, mercury, and hexavalent chromium. Additionally, samples were collected near the south end of the unloading station and analyzed for ICP metals, mercury, IC anions, and SVOA. The results support closure of these segments of the 100-N-84:6 subsite. No additional verification samples will be collected. The pipeline removal and data will be discussed in the closure document for the 100-N-84:6 subsite.

## SEGMENT W

During the remediation of the UPR-100-N-19, UPR-100-N-21, UPR-100-N-22, UPR-100-N-23, and UPR-100-N-43 waste sites (referred to as UPR-100-N-19 grouping), segments of the 100-N-84:2, 100-N-84:5, and 100-N-84:6 subsites were removed and disposed at the ERDF. Although the *Remaining Sites Verification Package for the UPR-100-N-19, UPR-100-N-21, UPR-100-N-22, UPR-100-N-23, and UPR-100-N-43 Unplanned Release Waste Sites* (WCH 2013m) does not specifically address the 100-N-84 subsite segments, the entire shallow zone (i.e., surface to 4.6 m [15 ft]) deep soils and miscellaneous debris (concrete, piping, and other construction debris) of the UPR-100-N-19 grouping was removed and disposed. This includes the 100-N-84:2, 100-N-84:5, and 100-N-84:6 pipeline segments within the excavation boundary. The deep zone soils underlying the UPR-100-N-19 grouping is part of the UPR-100-N-42 waste site. Therefore, soils related to the 100-N-84:2, 100-N-84:5, and 100-N-84:6 have been removed and no additional verification samples will be collected for these 100-N-84 subsite segments. The removal and disposal of these pipeline segments will be discussed in the closure documents for the 100-N-84:2, 100-N-84:5, and 100-N-84:6 subsites.

Additionally, a segment of the 100-N-84:8, 100-N Area Unidentified Pipelines within Planned Excavations subsite was also removed. The 100-N-84:8 is described as unidentified, various diameter, pipelines that are believed to be less than 4 m (13 ft) and are within planned remedial action excavations. No additional verification samples will be collected for this segment of pipeline. The removal of this pipeline segment will be included in the closure document for the 100-N-84:8 subsite.

**Figure 3. November 2008 Aerial Photograph of the 100-N-84:6 Segment Removed by D4.**



### **SEGMENT X**

During the remediation of the 100-N-22 waste site, segments of the 100-N-84:5 subsite were also removed and disposed. The *Remaining Sites Verification Package for the 100-N-22, 1705-N Septic Tank and Cesspool, 1706-NA Sanitary Sewer System* (WCH 2012) states that portions of the 100-N-84:5 are co-located with the 100-N-22. The 100-N-22 waste site verification samples included the same COPCs as those listed for the 100-N-84:5 subsite. Samples collected to support the closure of the 100-N-22 waste site will be used to support closure of these segments of the 100-N-84:5 subsite. No additional verification samples will be collected. The removal and disposal of these pipeline segments and the sampling results will be discussed in the closure document for the 100-N-84:5 subsite.

Additionally, a segment of the 100-N-84:8, 100-N Area Unidentified Pipelines within Planned Excavations subsite was also removed. The 100-N-84:8 is described as unidentified, various diameter, pipelines that are believed to be less than 4 m (13 ft) and are within planned remedial action excavations. No additional verification samples will be collected for this segment of pipeline. The removal of this pipeline segment will be included in the closure document for the 100-N-84:8 subsite.

### **SEGMENT Y**

This segment of the 100-N-84:5 pipeline is located near an active power pole. Per the "100-N-84:5/6 Proposal to Leave Segments in Place" agreement (WCH 2013a), this segment of the 100-N-84:5 subsite will not be removed and will remain in place. No verification sampling will

be conducted. This segment of pipeline will be discussed in the closure document for the 100-N-84:5 subsite.

#### **SEGMENT Z**

This segment of the 100-N-84:5 pipeline runs parallel to the active 100-N export water line. Per the "100-N-84:5/6 Proposal to Leave Segments in Place" agreement (WCH 2013a), this segment of the 100-N-84:5 subsite will not be removed and will remain in place. No verification sampling will be conducted. This segment of pipeline will be discussed in the closure document for the 100-N-84:5 subsite.

#### **SEGMENT AA**

These segments of the 100-N-84:5 and 100-N-84:6 pipelines were removed during D4 activities and field remediation activities west of the 105-N/109-N reactor. The pipeline and soil below the pipeline have been removed and disposed at the ERDF. The excavation in this area is extremely deep and the current elevation is well below where the pipelines originated. No additional verification samples will be collected. These segments of pipeline will be discussed in the closure documents for the 100-N-84:5 and 100-N-84:6 subsites. Additionally, a segment of the 100-N-84:8, 100-N Area Unidentified Pipelines within Planned Excavations subsite was also removed. The 100-N-84:8 is described as unidentified, various diameter, pipelines that are believed to be less than 4 m (13 ft) and are within planned remedial action excavations. No additional verification samples will be collected for this segment of pipeline. The removal of this pipeline segment will be included in the closure document for the 100-N-84:8 subsite.

#### **SEGMENT BB**

This segment of the 100-N-84:5 subsite was a 5" sanitary sewer pipeline and was removed and disposed in the early 1960's prior to the construction of the 185-N Building. During current field remediation activities along the northern segment of this same pipeline, no pipeline was found to be present. Because this segment of pipeline is in a culturally sensitive area and no pipeline was found to be present north of this area, no additional remediation will be conducted. Additionally, no verification samples will be collected. This will be discussed in the closure document for the 100-N-84:5 subsite.

#### **SEGMENT CC**

These segments of the 100-N-84:5 subsite are being left in place with no further remediation per the "84:5 Mobil Office Pipeline Request" regulatory agreement (WCH 2013n) and the "100-N-84:5 Pipeline Request for No Action Proposal" regulatory agreement (WCH 2013o). These segments will be discussed in the closure document for the 100-N-84:5 subsite.

#### **SEGMENT DD (Shown on Figure 2)**

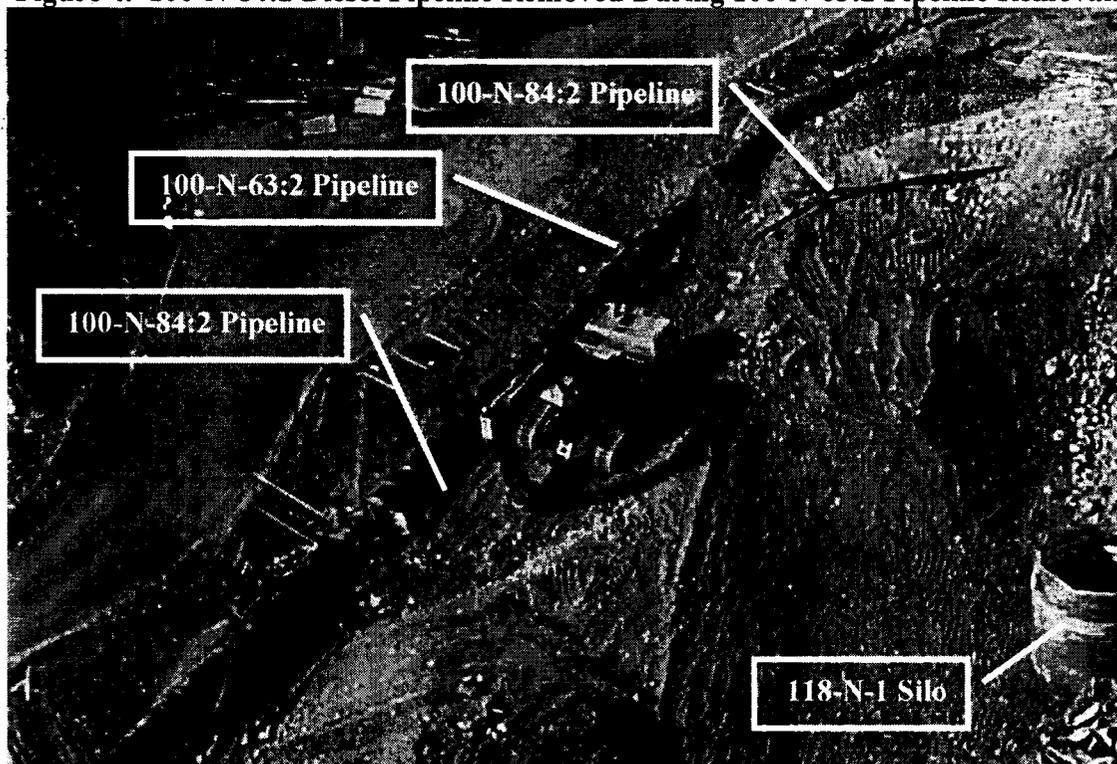
These segments of the 100-N-84:2 pipelines were removed concurrent with D4 facility removal actions (e.g., 181-N River Pump House, 1908-N outfall, 107-N Basin Recirculation Facility, 1303-N Spacer Silos, 117-N Air Filter Building) and FR waste site remediation (a few include UPR-100-N-30, 100-N-63:2, 100-N-57, 118-N-1, 116-N-4). These pipeline segments were shallow subsurface pipelines that were located in areas where large-scale facility removal and

waste site remediation was performed to depths greater than 15 ft and in some locations as deep as 30 ft deep. Figure 4 shows the 100-N-84:2 diesel pipeline exposed during excavation and removal of the 100-N-63:2 pipeline. The 100-N-84:2 pipelines were drained prior to removal. No pipeline releases were noted or petroleum stained soil observed during removal and remediation work performed for the pipeline segments located on the west side of the 105-N Reactor. Therefore, no verification sampling will be performed for these pipeline segments indicated in Figure 2.

### SEGMENT EE

These segments of the 100-N-84:5 and 100-N-84:6 subsite intersect the fire protection/export water line and have been approved to remain in place per the "100-N-84:5/6 Proposal to Leave Segments in Place" agreement (WCH 2013a). These segments will not be removed and no verification sampling will be conducted. These segments of pipeline will be discussed in the closure document for the 100-N-84:5 subsite.

**Figure 4. 100-N-84:2 Diesel Pipeline Removed During 100-N-63:2 Pipeline Removal.**



### SUMMARY

Segments of the 100-N-84:2, 100-N-84:4, 100-N-84:5, 100-N-84:6, and 100-N-84:8 pipelines subsites addressed in this paper have been approved to leave in place without remediation, or have been removed and disposed during collocated waste site remediation and facility demolition. The verification sampling results to support closure of the waste site was used to support closure of the pipeline segment that was within the collocated waste site and no

additional verification sampling will be conducted. Segment R was removed by D4 during the 108-N facility demolition and samples collected to support the facility closure were used to support the closure of the collocated segment of the 100-N-84:6 subsite. The segments of the 100-N-84:2, 100-N-84:4, 100-N-84:5, and 100-N-84:6 subsites located outside of the waste site or facility removal boundaries have been/will be removed and disposed and a separate verification sample design and closure document will be prepared to support interim closure of those remaining pipeline segments.

## REFERENCES

WCH 2011, "100-N FR South River Road Agreement," CCN 158653 to R. Varljen, Washington State Department of Ecology, from T. L. Faust, Washington Closure Hanford, Richland, Washington, May 19.

WCH, 2012, *Remaining Sites Verification Package for the 100-N-22, 1705-N Septic Tank and Cesspool, 1706-NA Sanitary Sewer System*, Attachment to Waste Site Reclassification Form 2012-078, Rev. 0, Washington Closure Hanford, Richland, Washington.

WCH, 2013a, "100-N-84:5/6 Proposal to Leave Segments in Place," CCN 173792 to W. Elliot, Washington State Department of Ecology, and J. Chance, U.S. Department of Energy, Richland Operations Office, from D. G. Saueressig, Washington Closure Hanford, Richland, Washington November 18.

WCH, 2013b, *Remaining Sites Verification Package for the 100-N-57, UPR-100-N-1, UPR-100-N-2, UPR-100-N-29, UPR-100-N-3, and UPR-100-N-32 Waste Sites*, Attachment to Waste Site Reclassification Forms 2012-111, 2012-112, 2012-113, 2012-114, 2012-115, and 2012-116, Rev. 0, Washington Closure Hanford, Richland, Washington.

WCH, 2013c, *Remaining Sites Verification Package for the 100-N-31, 100-N-32, 100-N-38, 100-N-61:3, 100-N-64:3, 100-N-68, UPR-100-N-3, UPR-100-N-7, UPR-100-N-10, UPR-100-N-12, and UPR-100-N-39 Waste Sites*, Attachment to Waste Site Reclassification Forms 2013-065, 2013-066, 2013-067, 2013-068, 2013-069, 2013-070, 2013-071, 2013-072, 2013-073, 2013-074, and 2013-075, Rev. 0, Washington Closure Hanford, Richland, Washington.

WCH, 2013d, *Remaining Sites Verification Package for the 118-N-1, 1303-N Spacer Silos Waste Site*, Attachment to Waste Site Reclassification Form 2013-076, Rev. 0, Washington Closure Hanford, Richland, Washington.

WCH, 2013e, *Remaining Sites Verification Package for the 100-N-61:4, Water Treatment and Storage Facilities Underground Pipelines South of 182-N Subsite, South Staging Pile, and 100-N Pipelines Overburden*, Attachment to Waste Site Reclassification Form 2013-051, Rev. 0, Washington Closure Hanford, Richland, Washington.

WCH, 2013f, *Remaining Sites Verification Package for the 124-N-2, 124-N2 Septic Tank, 100-N Sanitary Sewer System No. 2 Waste Site*, Attachment to Waste Site Reclassification Form 2013-030, Rev. 0, Washington Closure Hanford, Richland, Washington.

- WCH, 2013g, *Remaining Sites Verification Package for the 116-N-2; 1310-N Chemical Waste Storage tank; 1310-N Waste Storage Area; The Golf Ball, UPR-100-N-5; 116-N-2 Radioactive Chemical Waste Treatment Storage Facility; 1310-N Chemical Waste Storage Tank Leak; UN-100-N-5, UPR-100-N-25; UN-100-N-25; Uncontrolled Venting of 1310-N Tank Waste Sites*, Attachment to Waste Site Reclassification Forms 2013-015, 2013-016, and 2013-017, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013h, *Remaining Sites Verification Package for the UPR-100-N-4, UPR-100-N-8, and UPR-100-N-31 Unplanned Release Waste Sites*, Attachment to Waste Site Reclassification Forms 2013-036, 2013-037, and 2013-038, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013i, *Remaining Sites Verification Package for the 100-N-61:1, 100-N-64:1, 100-N-24, 100-N-29, 100-N-30, 100-N-37, and 100-N-53 Waste Sites*, Attachment to Waste Site Reclassification Forms 2013-019, 2013-020, and 2013-021, 2013-022, 2013-023, 2013-024, and 2011-064, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013j, *Remaining Sites Verification Package for the 120-N-3, 163-N Neutralization Pit and French Drain*, Attachment to Waste Site Reclassification Form 2012-119, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013k, *Remaining Sites Verification Package for the 124-N-1, 100-N Sanitary Sewer System No. 1 Waste Site*, Attachment to Waste Site Reclassification Form 2013-050, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013l, *Remaining Sites Verification Package for the 100-N-23; Resin Disposal Pit Liquid Waste Site 1*, Attachment to Waste Site Reclassification Form 2013-009, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013m, *Remaining Sites Verification Package for the UPR-100-N-19, UPR-100-N-21, UPR-100-N-22, UPR-100-N-23, and UPR-100-N-43 Unplanned Release Waste Sites*, Attachment to Waste Site Reclassification Forms 2013-025, 2013-026, 2013-027, 2013-028, and 2013-029, Rev. 0, Washington Closure Hanford, Richland, Washington.
- WCH, 2013n, "84:5 Mobile Office Pipeline Request," CCN 169855 to W. Elliot, Washington State Department of Ecology, and J. Chance, U.S. Department of Energy, Richland Operations Office, from D. G. Saueressig, Washington Closure Hanford, Richland, Washington February 14.
- WCH, 2013o, "100-N-84:5 Pipeline Request for No Action Proposal," CCN 169555 to W. Elliot, Washington State Department of Ecology, and J. Chance, U.S. Department of Energy, Richland Operations Office, from D. G. Saueressig, Washington Closure Hanford, Richland, Washington January 23.
- WCH, 2013p, *Remaining Sites Verification Package for the 100-N-28, 100-N-61:2, 100-N-62, and 100-N-64:2 Sites*, Attachment to Waste Site Reclassification Forms 2012-102, 2012-103, 2012-104, and 2012-105, Rev. 0, Washington Closure Hanford, Richland, Washington.

# Attachment 17

174472

**^WCH Document Control**

---

**From:** Saueressig, Daniel G  
**Sent:** Thursday, January 30, 2014 12:40 PM  
**To:** ^WCH Document Control  
**Subject:** FW: 100-N-54 Additional Remediation and Resampling Agreement:  
**Attachments:** 100-N-54 additional remediation and resampling writeup.doc; 100-N-54 Additional Remediation and Resampling Agreement DOE concurrence.htm

Please provide a chron number (and include the attachments). This email documents a regulatory agreement.

Thanks,

Dan Saueressig  
 FR Environmental Project Lead  
 Washington Closure Hanford  
 521-5326

---

**From:** Elliott, Wanda (ECY) [mailto:well461@ECY.WA.GOV]  
**Sent:** Wednesday, January 29, 2014 1:03 PM  
**To:** Jakubek, Joshua E; Chance, Joanne C  
**Cc:** Nielson, Renee J; Howell, Theresa Q; Saueressig, Daniel G; Biebrich, Ernest J  
**Subject:** RE: 100-N-54 Additional Remediation and Resampling Agreement:

I concur.

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




---

**From:** Jakubek, Joshua E [mailto:jejakube@wch-rcc.com]  
**Sent:** Wednesday, January 29, 2014 7:17 AM  
**To:** Elliott, Wanda (ECY); Chance, Joanne C  
**Cc:** Nielson, Renee J; Howell, Theresa Q; Saueressig, Daniel G; Biebrich, Ernest J  
**Subject:** 100-N-54 Additional Remediation and Resampling Agreement:

1/30/2014

Wanda & Joanne,

Good morning; we had our verification sample for the 100-N-54 site fail for PAH / SVOA. Attached is our request for additional remediation and resampling. Please note that we added all analytes (not just the failed analytes) to this one since there is only one sample at this site to start with.

Please let me know if you have any questions and if you concur with this approach.

<< File: 100-N-54 additional remediation and resampling writeup.doc >>

Thanks,

Josh Jakubek  
Washington Closure Hanford  
Resident Engineer  
509-942-4703

## 100-N-54 Waste Site Additional Remediation and Resampling Request

### Background Information

The 100-N-54, 151-N Building Drywell waste site consisted of the soil below a former drywell that received discharges from the former 151-N facility sink. Verification sampling was conducted on January 14, 2014 as per the approved *Work Instruction for Verification Sampling of the 100-N-54, 151-N Building Drywell* (WCH 2014). One decision unit was identified for the 100-N-54 waste site and includes the excavation only. One focused sample plus a duplicate and split were collected from the waste site.

The main, duplicate, and split samples failed direct exposure remedial action goals for benzo(a)anthracene, benzo(a)pyrene, and/or benzo(b)fluoranthene.

### Recommendation for Path Forward

Washington Closure Hanford proposes additional soil to be removed from the floor of the 100-N-54 excavation. A post-remediation photograph of the 100-N-54 waste site is provided in Figure 1. The depth of additional soil removal will be between 1 to 2 meters depending on observations in the field (e.g., discolored or stained soil, debris, etc.).

Following additional soil removal, replacement samples will be collected and analyzed for the site COPCs. A sample summary is provided in Table 1.

**Figure 1. Photograph of the 100-N-54 Post-Remediation.**



**Table 1. 100-N-54 Replacement Sample Summary.**

Sample Location	HEIS Sample Number	Washington State Plane Coordinates (m)		Sample Analysis
		Northing	Easting	
FS-1	TBD	149304.3	571315.7	ICP metals <sup>a</sup> , mercury, PAH, PCB, SVOA
Duplicate of FS-1	TBD	149304.3	571315.7	
Split of FS-1	TBD	149304.3	571315.7	

<sup>b</sup> Analysis for the expanded list of ICP metals will be performed to include antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total), cobalt, copper, lead, manganese, molybdenum, nickel, selenium, silver, vanadium, and zinc.

HEIS = Hanford Environmental Information System

ICP = inductively coupled plasma

PAH = polycyclic aromatic hydrocarbons

PCB = polychlorinated biphenyls

SVOA = semivolatile organic analysis

TBD = to be determined

## REFERENCES

WCH, 2014, *Work Instruction for Verification Sampling of the 100-N-54, 151-N Building Drywell*, 0100N-WI-G0079, Rev. 0, Washington Closure Hanford, Richland, Washington.

**From:** Jakubek, Joshua E

**Sent:** Thursday, January 30, 2014 9:20 AM

**To:** Saueressig, Daniel G; Nielson, Renee J; Howell, Theresa Q

**Subject:** FW: 100-N-54 Additional Remediation and Resampling Agreement:

Dan, here is Joanne's concurrence for the 100-N-54 plume chase agreement. Wanda sent hers separately. Can you get all of these chronned?

Thanks,

Josh Jakubek

Washington Closure Hanford

Resident Engineer

509-942-4703

---

**From:** Chance, Joanne C [mailto:joanne.chance@rl.doe.gov]

**Sent:** Wednesday, January 29, 2014 12:46 PM

**To:** Jakubek, Joshua E

**Cc:** Elliott, Wanda

**Subject:** Re: 100-N-54 Additional Remediation and Resampling Agreement:

I concur. Thanks.

Sent from my iPad

On Jan 29, 2014, at 7:15 AM, "Jakubek, Joshua E" <jjakube@wch-rcc.com> wrote:

Wanda & Joanne,

Good morning; we had our verification sample for the 100-N-54 site fail for PAH / SVOA. Attached is our request for additional remediation and resampling. Please note that we added all analytes (not just the failed analytes) to this one since there is only one sample at this site to start with.

Please let me know if you have any questions and if you concur with this approach.

Thanks,

Josh Jakubek

Washington Closure Hanford

Resident Engineer

509-942-4703

<100-N-54 additional remediation and resampling writeup.doc>

# Attachment 18

Activity ID	Activity Name	% Cmpl	R/D	Start	Finish
100 D					

**Excavation**

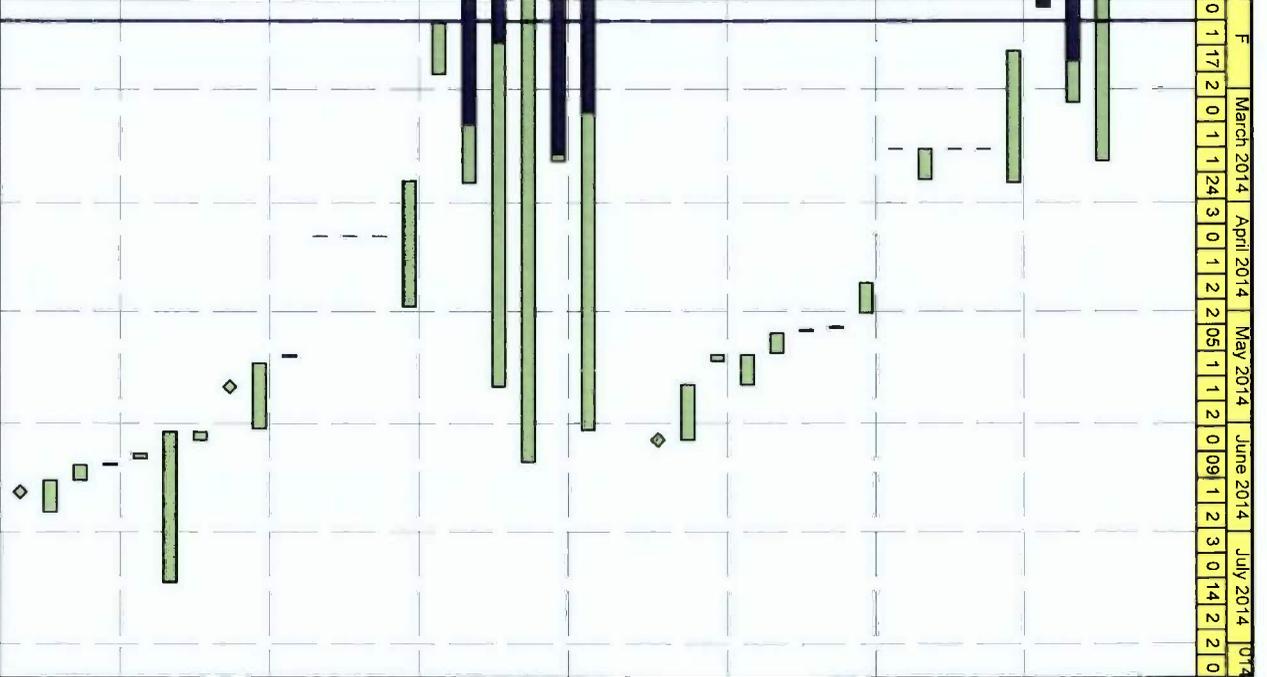
100D100A385	Excavate 100-D-104 Tier 3 Plume	34.6%	23	14-Nov-13 A	20-Mar-14
CBB0516FCDD	Excavate 100-D-31:11&12 Phase 1 (32,800 BCM BCL)	87%	13	03-Dec-13 A	04-Mar-14
100D100A311Q	100-D-100 Resurfacing	100%	0	27-Jan-14 A	06-Feb-14 A
100D100A311Q	Excavate 100-D-100: Plume 4	0%	22	18-Feb-14*	26-Mar-14
CBB0541A	Excavate 100-D-83:3 (182 BCM)	0%	0	17-Mar-14*	17-Mar-14
CBB0543A	Excavate 100-D-84:2 (634 BCM)	0%	1	17-Mar-14*	17-Mar-14
CBB0537A	Excavate 100-D-72 (5,306 BCM)	0%	6	17-Mar-14*	25-Mar-14
CBB0548A	Excavate 100-D-97 (128 BCM)	0%	0	17-Mar-14	17-Mar-14
CBC0518A	Excavate 100-D-106 - (5,412 BCM)	0%	6	23-Apr-14*	01-May-14
CBB0547A	Excavate 100-D-96:2 - (145 BCM)	0%	1	05-May-14	05-May-14
CBB0550A	Excavate 100-D-99 - (567 BCM)	0%	1	06-May-14	06-May-14
CBB0535A	Excavate 100-D-69 - (1,754 BCM)	0%	3	07-May-14	12-May-14
CBB0545A	Excavate 100-D-86:1 (5,200 BCM) **RAD**	0%	6	13-May-14	21-May-14
CBB0545AA10	Demo 100-D-86:1 (5,200 BCM) **RAD**	0%	2	13-May-14*	14-May-14
CBB0544A	Excavate 100-D-85:2 (7,400 BCM) **RAD**	0%	8	21-May-14	05-Jun-14
DMS070A	Excavation Campaign Complete 100D	0%	0		05-Jun-14

**Loadout**

100D100A372	Loadout 100-D-100 Tier 3 & Potential Plume	68%	63	02-Sep-13 A	02-Jun-14
100D100A312	Loadout 100-D-104 Tier 3 (MHVs -27,375 Tons)	99%	10	17-Sep-13 A	20-Mar-14
RD100D30A42	Loadout 100-D-30 Plume Loadout (MHVs - 97,600 Tons)	35%	69	14-Oct-13 A	11-Jun-14
100D100A422	LDR for 100-D Area (60,000)	30%	58	06-Jan-14 A	21-May-14
CBB0542B	Loadout 100-D-83:5	75%	26	21-Jan-14 A	26-Mar-14
CBB0534B	Loadout 100-D-81 5,318 Tons	0%	8	10-Feb-14*	24-Feb-14
CBB0566B	Loadout 147-D ISRM Pond	0%	20	26-Mar-14*	29-Apr-14
CBB0541B	Loadout 100-D-83:3 (Blue Dot Containers - 174 Tons)	0%	0	10-Apr-14*	10-Apr-14
CBB0548B	Loadout 100-D-97 (Blue Dot Containers - 45 Tons)	0%	0	10-Apr-14	10-Apr-14
CBB0543B	Loadout 100-D-84:2 (Blue Dot Cans - 280 Tons)	0%	0	10-Apr-14	10-Apr-14
CBB0513B1	Loadout 1607-D2:5 (112 Tons) MHVs	0%	1	13-May-14	13-May-14
CBB0516G	Loadout 100-D-31:11&12 (Blue Dot - 17,360 Tons)	0%	8	15-May-14	02-Jun-14
DMS080A10	Loadout Campaign complete (LDR)	0%	0		21-May-14
100D100A345	Loadout 100-D-104 Tier 3 BlueDot	0%	3	03-Jun-14*	05-Jun-14
100D100A375	Loadout 100-D-104 Tier 3 Plume (MHVs 49,335 tons)	0%	23	03-Jun-14	14-Jun-14
CBB0545B	Loadout 100-D-86:1 (Orange Cans -)	0%	2	09-Jun-14	10-Jun-14
CBB0547B	Loadout 100-D-96:2 - (3 Tons) MHVs	0%	1	12-Jun-14	12-Jun-14
CBB0550B	Loadout 100-D-99 - (281 Tons) MHVs	0%	1	12-Jun-14	16-Jun-14
CBC0518B	Loadout 100-D-106 - (11,906 Tons) MHVs	0%	6	16-Jun-14	25-Jun-14
DMS090B	Loadout Campaign Complete (ERDF Containers) 100H	0%	0		19-Jun-14

SPIE Bar  
 Remaining Work  
 Critical Remaining Work  
 Actual Work  
 Actual Critical Work  
 Remaining Level of Effort

Data Date: 10-Feb-14  
 Page 1 of 2  
 CPP 100-H - Current after FR-539...  
 TASK filter: 100-DH POW Content.





# Attachment 19

## FACILITY STATUS CHANGE FORM (for DOE/RL-2010-34 Facilities)

<b>Date Submitted:</b> February 3, 2014 <b>Originator:</b> Clay McCurley <b>Phone:</b> 942-8928	<b>Area:</b> 100D <b>Facility ID:</b> 151D Primary Electrical Substation <b>Action Memorandum:</b> General Hanford Site Decommissioning Activities	<b>Control #:</b> D4-100D-003-1
--	---	------------------------------------

**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 removal actions require by action memo complete.
- Removal actions required by actions memo partially complete, remaining operations deferred.

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

**Decontamination and Decommissioning:** The following hazardous materials were removed prior to facility demolition: light bulbs, fuses containing lead, mercury switches, oils, grease, Regulated Asbestos-Containing Material (RACM), and polychlorinated biphenyl (PCB) containing equipment. Hazardous material removal and waste disposition was performed in accordance with the *Removal Action Work Plan for River Corridor General Decommissioning Activities, DOE/RL-2010-034*.

**Demolition:** The 151-D primary electrical substation (switch yard) was demolished in place in the 100-D area from October 2013 to January 2014. Most of the metal (e.g., steel, copper) that made up yard equipment, as well as residual oil remaining in that equipment, was recycled. The balance of the demolition debris (e.g., concrete pads) was loaded out and disposed of at the ERDF. Based on past uses of this facility, the radiological scoping surveys for the switchgear building (see Attachment 4 of D4-100D-003), and radiological surveys performed subsequent to the demolition of the 151-D switchgear building (see Attachment 4), radiological contamination was not expected during demolition.

Class I friable asbestos containing material (ACM), Class II non-friable ACM, and oil/grease containing polychlorinated biphenyls were the only contaminants of concern for demolition. The Class I ACM was abated prior to demolition and the portions of demolition that involved Class II ACM were performed under asbestos controls. The area was surveyed by GPS to delineate the extent of the excavations and below grade structures that were left for future remediation in accordance with the final Record of Decision for WIDS Site 100-D-75:1.

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

Backfill is deferred to facilitate the remediation of WIDS Site 100-D-75:1.

### **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 removal action. Waste site identification number <to be> assigned.  
Cleanup and closeout to be addressed under Record of Decision.

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

All switch yard equipment, perimeter fence, and support pads were removed to -3 feet below grade and recycled or disposed at the ERDF. Two concrete vaults (located between the former switchgear building and concrete pads that supported the oil-containing circuit breakers) were demolished to -3 feet below grade. One was partially backfilled with borrow pit material and the other was partially backfilled with adjacent soil to eliminate safety concerns associated with steepened edges. Cement asbestos piping (embedded in concrete) greater than 3 feet in depth that provided conduit between yard support structures (concrete pads) was left buried in place undisturbed between pads.

## FACILITY STATUS CHANGE FORM (for DOE/RL-2010-34 Facilities)

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

100-D-75:1 - 151-D Primary Electrical Substation Yard. This WIDS site consists of the entire fenced gravel switch yard. The WIDS designation is primarily due to the operation and maintenance of PCB containing electrical equipment. The WIDS site was impacted by D4 activities with the removal of some yard structures to 3 feet below grade. The 100-D-75:1 WIDS site will be recommended for cleanup by remove, treat and disposal under a final action Record of Decision.

**Section 3: List of Attachments**

1. Facility Information
2. Photographs of the 151D Primary Electrical Substation
3. Off-Site Acceptability Determination for 151-B and 151-D Substations
4. Radiological Scoping Surveys Performed Subsequent to 151D Switchgear Building Demolition
5. Post Demolition Visual Inspection of 151D Switch Yard
6. 151D Switch Yard GPS Surveys

 Rudy Guercia
 

DOE-RL (Lead Agency)

 Date
 2/3/2014
**DISTRIBUTION:**

DOE: Rudy Guercia, A3-04

Sample Design/Cleanup Verification: Theresa Howell, H4-23

Document Control, H4-11

FR Engineering: Rich Carlson, N3-30

Administrative Record, H6-08 (100-DR-1 OU)

FR EPL: Dan Saueressig, N3-30

SIS Coordinator: Benjamin Cowan, H4-22

D4 EPL: Clay McCurley, L4-45

# **Attachment 1**

**Facility Information (3 pages)**

## Facility Information

### Introduction

This document provides information regarding the history, characterization, and final status at the completion of deactivation, decontamination, decommissioning and demolition (D4) activities of the 151D primary electrical substation (switch yard) located in the 100-D Area as shown in Figure 1 (Attachment 2).

### Facility Description

The 151D switch yard shown in Figure 2 (Attachment 2) served as the primary source of electrical power for all facilities in the 100-D Area. It consisted of a fenced, gravel-bed yard measuring approximately 165 m (541 ft) on a side with the 151D switchgear building along the northern fence line. The switchgear building was demolished in April, 2013 and is not addressed in this document. The Facility Status Change Form (FSCF) documenting D4 of the switchgear building is found in Document No. D4-100D-003. A railroad spur entered the yard from the east and paralleled the north fence line.

Concrete pads of various sizes protruded from the crushed gravel bed throughout the yard, supporting a variety of electrical equipment, including transformers, power line towers and stands, and oil-filled circuit breakers (OCBs). The OCB stored in the northeast corner of the switch yard could not have been in use at this location. To be in service it would have had to be secured to a concrete pad and bolted to the overhead bus.

Two smaller transformers located near the center of the switch yard are old 181D transformers associated with WIDS Site 100-D-75:2. They were drained of their PCB oil on 7/12/2005 and relocated to the switch yard between 2008 and 2009.

### Facility History

The 151D switch yard received 230 kV power from the Midway Substation and was first energized in August 1944. The three main transformers in the switch yard transmitted power, primarily via underground cables, to thirteen secondary substations and nine distribution substations located throughout the 100-D Area including transformers located at the 181-D River Pump House, 182D Head Houses, 183D Filter Houses, 184D Power House, 186D Water Treatment Plant, 190 Pump Houses, and 105D/DR Reactors. These facilities, in turn, distributed power to associated facilities. It continued to be used after the 105D and 105DR Reactors were shut down in the 1960s to provide power for occupied facilities in the 100 Area and backup power to the 100-N Area. It also provided power for pumping fire water for the 100 and 100-F Areas and for backup export water supply to the 200 Area.

A known PCB oil spill in the switch yard was remediated in 1995 but may not have been the only leak or spill because such events were not consistently recorded before about 1985 and there is anecdotal information from power operators that transformer spills and leaks were not uncommon. As a result, concrete pads supporting transformers or OCBs and surrounding soil may have PCB contamination. The switch yard was accepted as a waste site and listed in the Waste Information Data System (WIDS) as site 100-D-75:1 that will be recommended for cleanup by remove, treat, and disposal under a final Record of Decision.

The switchgear building and an adjacent microwave tower were demolished in April 2013 leaving in place the concrete floor and walls of the basement greater than 3 feet deep. The excavation was not backfilled since that portion of the scope would be performed with the demolition of the switch yard or remediation of the 100-D-75:1 WIDS site. With the exception of the transformer bushings, all equipment in the switch yard had been drained of oil several years earlier. Since the switch yard had no radiological contamination and no potential to emit (see Attachment 4 of D4-100D-003), a subcontractor specialized in recycling transformers and PCB oil was hired to drain and recycle the oil as well as remove and recycle all six transformers from the switch yard. EPA reviewed and concurred with the organization and destinations selected for this work (see Attachment 3). Figure 3 in Attachment 2 documents two of the large transformers being secured to trailers for transport.

Demolition of the switch yard began in October, 2013. Figure 4 (Attachment 2) provides an aerial view of D4 activities in progress. Figure 5 (Attachment 2) provides an overview of the switchyard at the completion of demolition. Most of the metal (e.g., metal towers, stands, transformers) was recycled.

All concrete pads supporting yard equipment were removed to -3 feet below grade. The buried cement asbestos pipe encased in concrete that provided conduit between facility structures (e.g., pads supporting transformers and switchgear building) was demolished under asbestos controls where it surfaced at the pads. Elsewhere in the yard, the pipe was greater than 3 feet in depth so it was left in place undisturbed and backfilled where it had been exposed. The switch yard was visually inspected for stains and anomalies on January 16, 2014 after demolition was completed. A copy of the inspection is provided in Attachment 5.

Pre and post demolition GPS surveys of the switch yard were performed. Copies of the survey reports are provided in Attachment 6. Only a small amount of backfill (from a nearby borrow pit) was imported to eliminate safety concerns associated with steepened edges in the larger of the excavations left behind. The other excavations were partially backfilled with adjacent soil to eliminate safety concerns.

#### **Radiological Scoping and IH Baseline Surveys**

The 151D switch yard was never posted for radiological conditions. Based on historical research of past uses, radiological contamination was not expected and radiological scoping surveys found no contamination. A survey of ceramic insulators (bushings) on site identified radiological activity but this activity, inherent within the ceramic matrix, was determined to be naturally occurring radioactive material (NORM). The switch yard was not listed on the Hanford Site Beryllium Controlled Facilities List however, it was surveyed prior to demolition and determined to be a beryllium-clean facility.

The switch yard was inspected and sampled for asbestos on July 24, 2013 (CCN 173954). Cloth covered wires in cabinets were found to contain friable asbestos. Buried cement asbestos pipe encased in concrete was presumed to contain asbestos, based on construction drawings. Bushings on top of OCBs and other equipment in the yard still contained some PCB oil and grease. Table 1 summarizes the radiological and beryllium surveys and the asbestos and PCB sampling performed. Pre and post demolition surveys using the Global Positioning Environmental Radiological Surveyor (GPERS) were not performed since the switch yard was not radiologically contaminated. Table 2 identifies the contaminants of concern (COC) and summarizes how each COC was managed.

**Table 1: Summary of Characterization Surveys at 151D**

Type	Quantity	Method Detection Limits	Results
Asbestos	5 samples	1% weight	Friable ACM was identified on cloth covered wires in cabinets and conduits. Buried cement asbestos piping (conduit) was presumed to be ACM.
IH Surveys and Beryllium Characterization	1 survey	Wipe Samples: clean release level for surface contamination - 0.2 $\mu\text{g}/100\text{cm}^2$  Bulk Samples: Hanford site background level - 2 $\mu\text{g}/\text{g}$	Assessment documents the building is Be clean.
Radiological Scoping Surveys	2 surveys	Beta-gamma: 1,000 removable/ 5,000 fixed <sup>a</sup>  Alpha: 20 removable/ 500 fixed <sup>a</sup>	No contamination identified (see Attachment 4).
Polychlorinated biphenyls	5 samples	50 ppm	PCBs identified in oil and grease collected from bushings on top of OCBs and other equipment.

<sup>a</sup> - dpm/100 cm<sup>2</sup>

**Table 2: Contaminants of Concern for Facility Demolition**

Contaminant of Concern	Management Practice
Class I Friable Asbestos Containing Material (ACM) and Class II Non-friable ACM	Wiring in cabinets that contained Class I friable ACM was abated prior to demolition. Cement asbestos piping (conduit) that surfaced at concrete pad was demolished under asbestos controls. Cement asbestos piping elsewhere in the yard was greater than 3 feet deep and left in place for remediation of WIDS Site 100-D-75:1 (deferred to final Record of Decision).
Polychlorinated biphenyls	Oil was recycled off site. Components containing grease were disposed at ERDF.

## **Attachment 2**

**Photographs of the 151D Primary Electrical Substation (3 pages)**

Figure 1. Aerial View of 100-D Area in October 2012 (facing north)

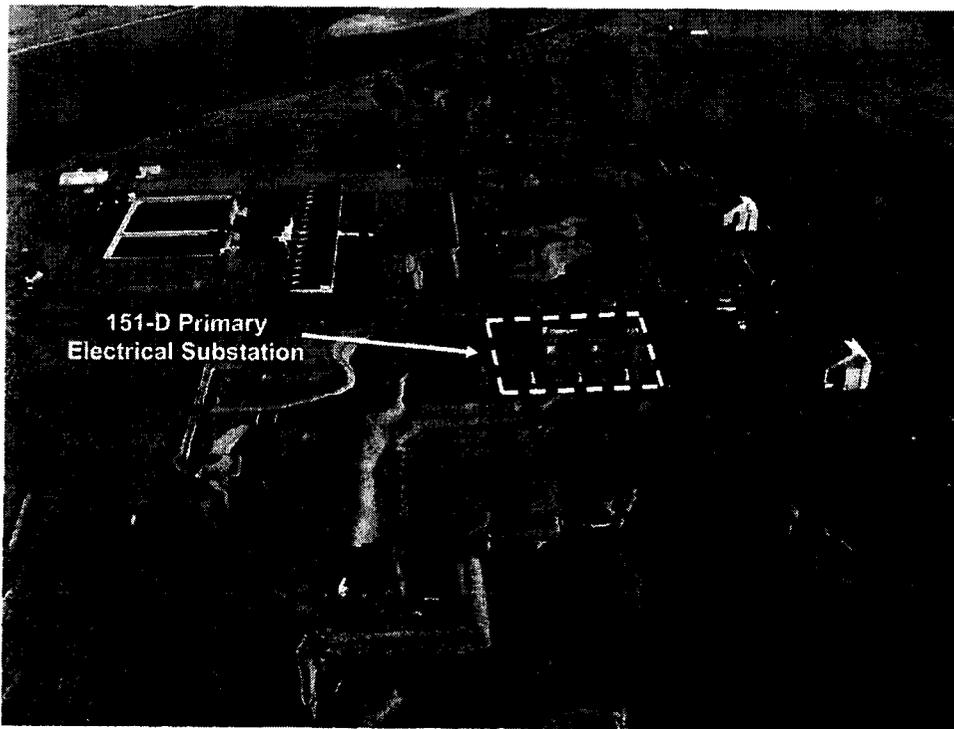
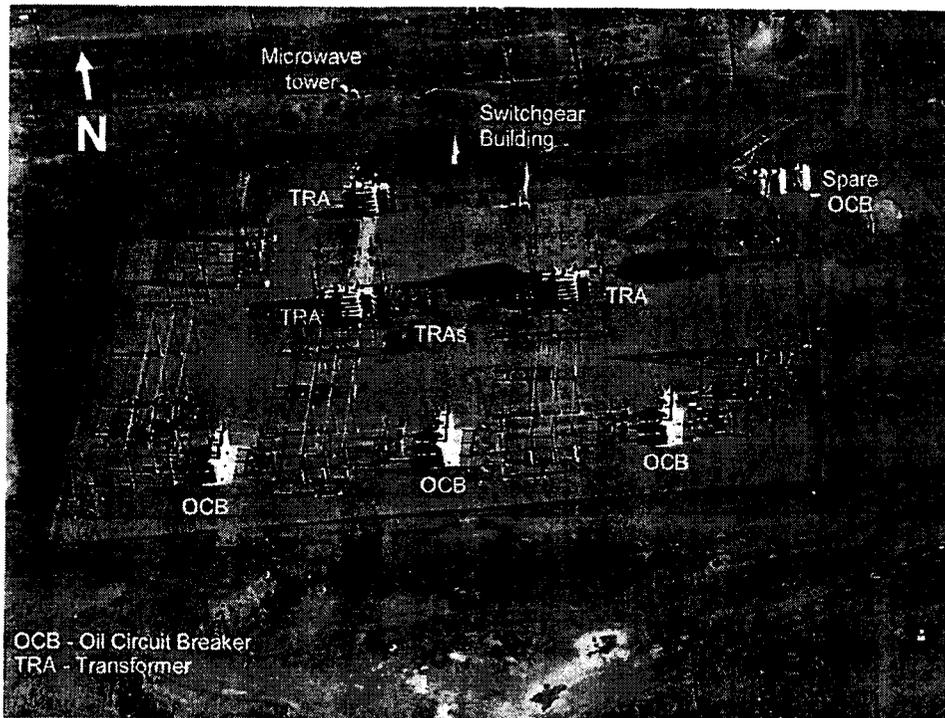
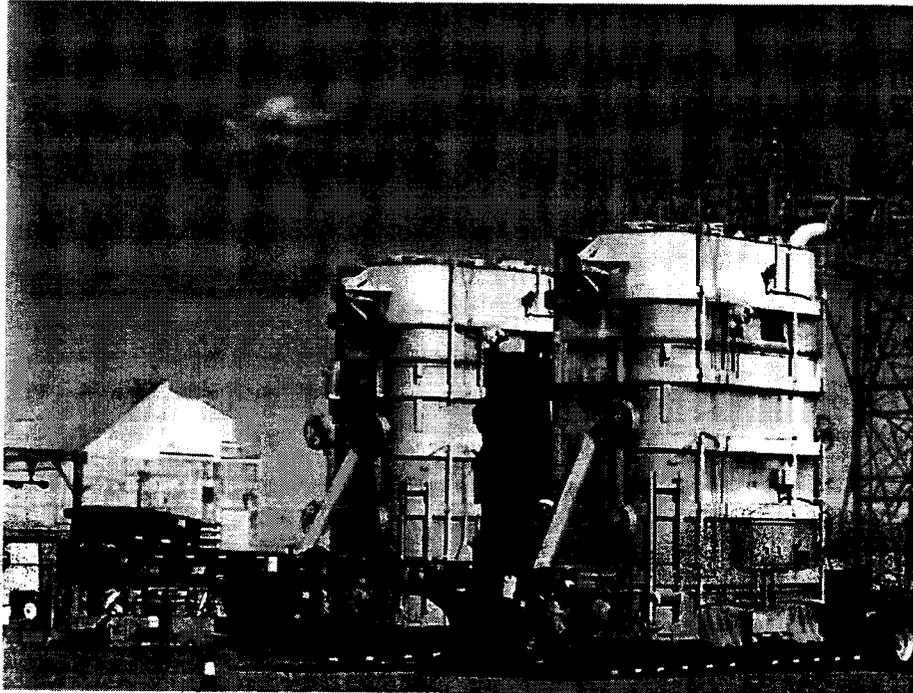


Figure 2. Aerial View of 151D Switch Yard in June 2012

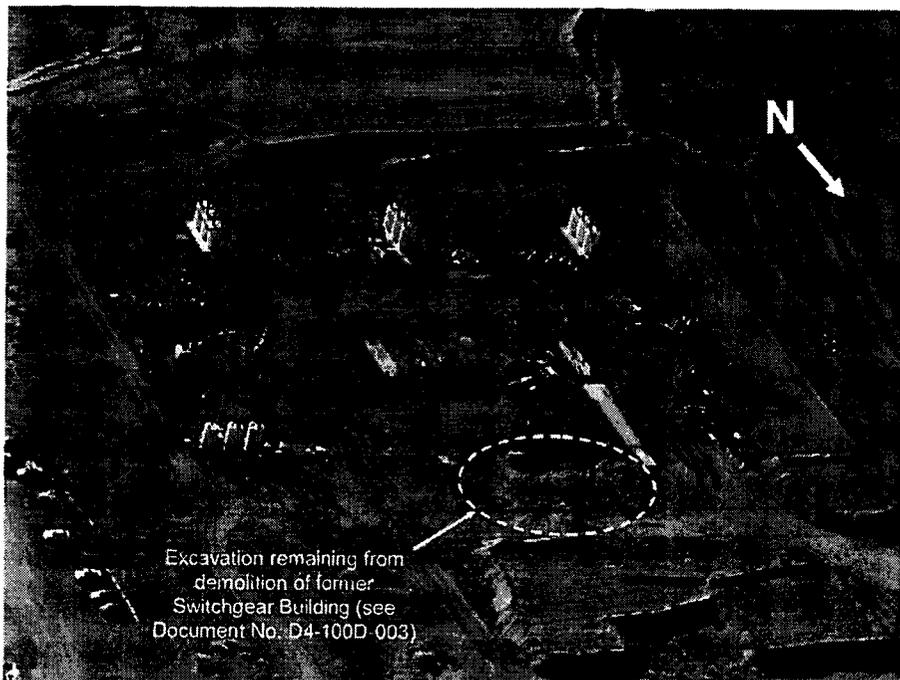


151D Primary Electrical Substation

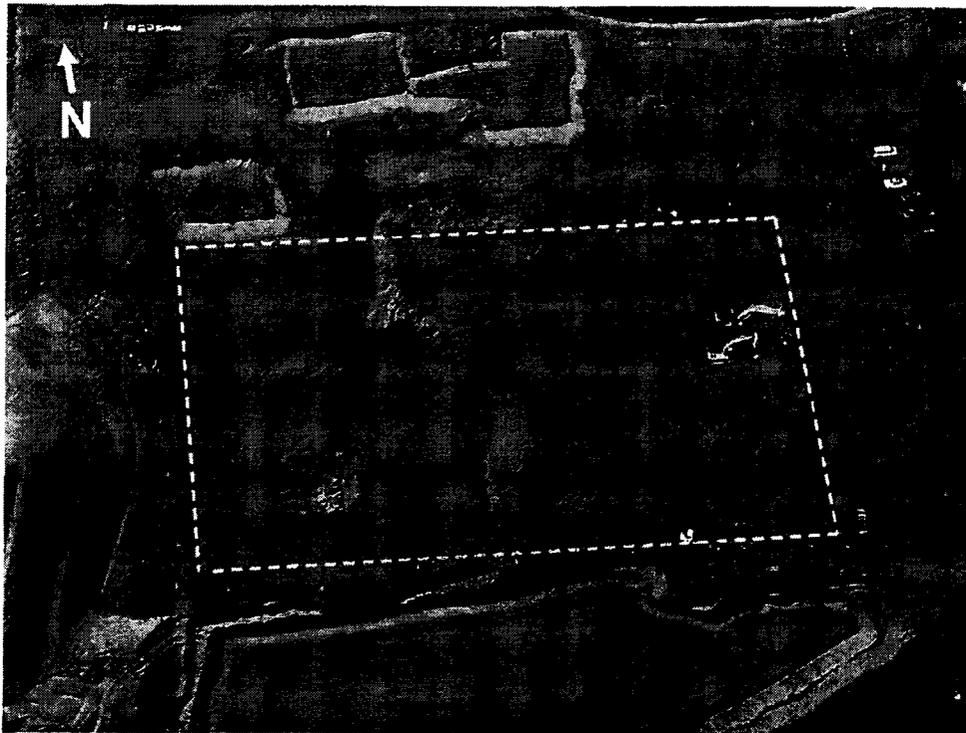
**Figure 3. Transformers Being Secured for Transport to Recycling Facility**



**Figure 4. Aerial View of 151D Switch Yard During Demolition Activities in November 2013**



**Figure 5. Aerial View of 151D Switch Yard After Completion of Demolition Activities in January 2014**



## **Attachment 3**

**Offsite Acceptability Determination for 151-B and 151D Substations (5 pages)**

**McCurley, Clay D**

---

**From:** McCurley, Clay D  
**Sent:** Thursday, January 30, 2014 1:10 PM  
**To:** ^WCH Document Control  
**Cc:** Strand, Christopher P  
**Subject:** Off-Site Acceptability Determination for 151-B and 151-D Substations

Folks. Please chron this email per the subject to document EPA concurrence with sending materials from the 151-B and 151-D Substations for recycling/disposal at the off-site facilities specified below. Also, please let me know which CCN has been assigned. Contact me if you have any questions. Thanks.  
Clay

---

**From:** Strand, Christopher P  
**Sent:** Monday, September 09, 2013 8:32 AM  
**To:** Hynes, Robert T; Guercia, Rudolph F; Douglas, L M (Michael); Allen, Mark E; McCurley, Clay D; Winterhaider, John A  
**Cc:** McBride, Donald J  
**Subject:** FW: Off-Site Acceptability Determination for 151B and 151D Substations

Mike, Bob,

The last of the TCI facilities (West Virginia) has been approved as an off-site facility for the substation waste streams.

Thanks,

Chris  
654-2720

---

**From:** Einan, Dave [mailto:Einan.David@epa.gov]  
**Sent:** Monday, September 09, 2013 8:06 AM  
**To:** Strand, Christopher P  
**Subject:** RE: Off-Site Acceptability Determination for 151B and 151D Substations

I've now heard back and Environmental Protection Services, EPA ID WVD988770673 is acceptable to receive waste.

Dave Einan  
509-376-3883

---

**From:** Strand, Christopher P [mailto:cpstrand@wch-rc.com]  
**Sent:** Wednesday, September 04, 2013 9:50 AM  
**To:** Einan, Dave  
**Subject:** RE: Off-Site Acceptability Determination for 151B and 151D Substations

Good morning Dave,

Have you had any luck with the West Virginia destination facility? We are about two weeks out before the

subcontractor begins to mobilize.

Thanks,

Chris  
554-2720

---

**From:** Einar, Dave [<mailto:Einar.David@epa.gov>]  
**Sent:** Wednesday, August 21, 2013 8:00 AM  
**To:** Strand, Christopher P  
**Subject:** RE: Off-Site Acceptability Determination for 151B and 151D Substations

Chris--

I've heard back about all of the facilities except the West Virginia, and they are all currently acceptable. I'll let you know as soon as I hear about WV.

Dave Einar  
509-376-3883

---

**From:** Strand, Christopher P [<mailto:cpstrand@wch-rcc.com>]  
**Sent:** Wednesday, August 07, 2013 10:15 AM  
**To:** Einar, Dave  
**Cc:** Guzzetti, Christopher; Bond, Fredrick W; Guercia, Rudolph F  
**Subject:** FW: Off-Site Acceptability Determination for 151B and 151D Substations

Dave,

Clarification from the subcontractor is provided immediately below. The New Jersey and Georgia facilities will not be used. Let me know if this is sufficient for you to continue your evaluation.

Thanks,

Chris  
554-2720

---

**From:** Les Joel [<mailto:ljoel@transformertechnologies.com>]  
**Sent:** Wednesday, August 07, 2013 10:02 AM  
**To:** Hynes, Robert T  
**Subject:** RE: Off-Site Acceptability Determination for 151B and 151D Substations

Bob - here is clarification:

- Any oil or equipment will ONLY be shipped to TCI of Alabama - EPA ID already supplied
- All equipment received by TCI of Alabama is processed on site - waste products sent to the Waste Management landfill - EPA ID already supplied
- All oil received by TCI of Alabama is sent to either EPS in West Virginia or Veolia in Texas - EPA ID already supplied

No facility in New Jersey or Georgia will be utilized.

Sincerely,

Les Joel  
General Manager

Transformer Technologies

[www.transformertechnologies.com](http://www.transformertechnologies.com)

(503) 880-0608 Cell  
(503) 364-5476 Office

---

**From:** Hynes, Robert T [<mailto:rthynes@wch-rcc.com>]  
**Sent:** Wednesday, August 07, 2013 9:47 AM  
**To:** Les Joel  
**Subject:** FW: Off-Site Acceptability Determination for 151B and 151D Substations

Les

Chris Strand, WCH Environmental Lead for the project, asked for some additional information (requested by EPA). Please take a look at the thread below and check its accuracy and provide me some additional information.

Thank you.

Bob

---

**From:** Strand, Christopher P  
**Sent:** Wednesday, August 07, 2013 9:10 AM  
**To:** Hynes, Robert T  
**Subject:** FW: Off-Site Acceptability Determination for 151B and 151D Substations

Bob,

FYI - can you be of assistance in getting the ID numbers below?

Thanks,

Chris  
554-2702

---

**From:** Einan, Dave [<mailto:Einan.David@epa.gov>]  
**Sent:** Wednesday, August 07, 2013 8:05 AM

**To:** Strand, Christopher P  
**Cc:** Guzzetti, Christopher; Guerdia, Rudolph F; Bond, Fredrick W  
**Subject:** RE: Off-Site Acceptability Determination for 151B and 151D Substations

Chris—

I quickly glanced at the website for the Salem facility, and it looks like they are going to trans-ship the oil to either Georgia or New Jersey. Can you get me the EPA id numbers for those? I'll need to check them, as well.

Dave Einan  
509-376-3883

---

**From:** Strand, Christopher P [mailto:cpstrand@wch-rcc.com]  
**Sent:** Tuesday, August 06, 2013 7:41 AM  
**To:** Einan, Dave; Guzzetti, Christopher; Guerdia, Rudolph F; Bond, Fredrick W  
**Subject:** RE: Off-Site Acceptability Determination for 151B and 151D Substations

Dave,

One clarification on the information provided below: dechlorination is being used to support decharacterizing the oil for treatment and disposal, not recovery and reuse.

My apologies for any confusion.

Chris  
554-2720

---

**From:** Strand, Christopher P  
**Sent:** Tuesday, August 06, 2013 7:14 AM  
**To:** Einan, David R; Guzzetti, Christopher@epamail.epa.gov; Guerdia, Rudolph F; Bond, Fredrick W  
**Subject:** Off-Site Acceptability Determination for 151B and 151D Substations

Dave,

Provided on DOE's behalf is the following information to support an Off-Site Acceptability Determination in accordance with 40 CFR 300.440 and the *Removal Action Work Plan for River Corridor General Decommissioning Activities*, DOE/RL-2010-34, Revision 2. Work scope includes transport off-site of PCB contaminated electrical equipment and associated oils from substation components located at the 151B and 151D facilities. An estimated total of 1,600 gallons of oil exists in facility components. Metal (both ferrous and nonferrous) will be decontaminated for recycle. In addition, PCB contaminated oils will be treated/dechlorinated for recovery and re-use. Destination facilities for the various waste streams are identified on the attachment with the primary company contact identified below. It is intended to initiate removal actions and off-site shipments this fall (September/October timeframe).

If EPA requires any additional information, please do not hesitate to contact me.

Thanks,

Chris  
554-2720

**Les Joel**  
**General Manager**

**Transformer Technologies**

**[www.transformertechnologies.com](http://www.transformertechnologies.com)**

**(503) 880-0608 Cell**  
**(503) 364-5476 Office**

## **Attachment 4**

**Radiological Scoping Surveys Performed Subsequent to 151D Switchgear Building  
Demolition (5 pages)**



# RADIOLOGICAL SURVEY RECORD

Page: 2 of 2

Survey # RSR - 100n-13-0487

## Contamination Measurement Information<sup>1</sup>

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

No.	Description of Item or Location	Removable (dpm/100 cm <sup>2</sup> )				Total (dpm/100 cm <sup>2</sup> )			
		$\alpha$	$\alpha$ C-F	$\beta$ - $\gamma$	$\beta$ - $\gamma$ C-F	$\alpha$	$\alpha$ C-F	$\beta$ - $\gamma$	$\beta$ - $\gamma$ C-F
1-125	all tech. wipes/direct surveys	<20	7	<1k	10	<100	7	<5k	10
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									

<sup>1</sup> Unless stated otherwise in the "References" section, exempted  $\beta$ - $\gamma$  (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-70, Tc-99, Pd-107, Eu-155) contamination levels are  $\leq 10$  times the  $\beta$ - $\gamma$  contamination levels shown above.

## Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	$\beta$ (mrad/hr) (WO-WC) X CF = DR	$\gamma$ (mR/hr) WC X CF = DR	$\beta$ (mrad/hr) (WO-WC) X CF = DR	$\gamma$ (mR/hr) WC X CF = DR
n/a				

# RADIOLOGICAL SURVEY RECORD

Type of Survey: <input type="checkbox"/> Routine <input checked="" type="checkbox"/> Work Progress		Survey #: RSR - 100N-13-0716	
RWP # / Rev. #: NA	Date: 06-27-2013	Time: 1500	Location: 100N/ 151D Switchyard

Description: Scoping Survey Above 6 Feet at 151D Switchyard

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)  
TA-07-SR-02/ Revision 3; RSP # SP-12-2210

### Scoping Survey above 6 Feet @ 151D Switchyard

Aerial photo below shows an overall view of the areas surveyed looking south with detail showing the location of specific surveys. Direct surveys of the ceramic insulators on the transformers showed 1,500-3,000 dpm/100cm<sup>2</sup> ft, with no detectable contamination on a 2 minute static count. All insulators surveyed were within the above range. Each insulator was also surveyed by technical smear and no removable contamination was found. See insulator detail on page 3.



CA Contamination Area	High MCA Contamination Area	RBA Radiological Buffer Area	ARA Airborne Radioactivity Area	(AS) Air Sample Location	RMA Radioactive Material Area	RA Radiation Area	HRA High Radiation Area	VHRA Very High Radiation Area		
<input type="radio"/> Technical Smear	# Over	M Large Area Mgr	T Transferable	General Area Dose Rates -Uncorrected Meter Reading (mR/hr)	All radiation readings are y dose rates in units of mR/hr unless otherwise indicated	Count 30 sec	N Neutrons (nR/hr)	Δ Micro Rn (μR/h)	SCA Soil Contamination Area	Radiological Boundary 1-1-1

### Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2560/43-93	SCLLS-0075/DYLLP-0176	09-21-2014 09-21-2014	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date: GL Epling/ <i>GL Epling</i> /06-27-2013	RCT Supervisor Name/Signature/Date: Mark Walden/ <i>M Walden</i> /7/2/13
---	---

WCH-TM-R006a (06/30/2009)

RCT signature indicates portable instruments checked IAW RC-300-2.1

# RADIOLOGICAL SURVEY RECORD

Survey #: RSR - 100N-13-0716

## Contamination Measurement Information<sup>1</sup>

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

No.	Description of Item or Location	Removable (dpm/100 cm <sup>2</sup> )				Total (dpm/100 cm <sup>2</sup> )			
		$\alpha$	$\alpha$ C-F	$\beta$ - $\gamma$	$\beta$ - $\gamma$ C-F	$\alpha$	$\alpha$ C-F	$\beta$ - $\gamma$	$\beta$ - $\gamma$ C-F
AR	Technical smears and directs	< 20	6.3	< 1,000	10	< 500	6.3	< 5,000	10
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>1</sup> Unless stated otherwise in the "References" section, exempted  $\beta$ - $\gamma$  (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-78, Tc-99, Pd-107, Eu-155) contamination levels are  $\leq 10$  times the  $\beta$ - $\gamma$  contamination levels shown above.

## Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

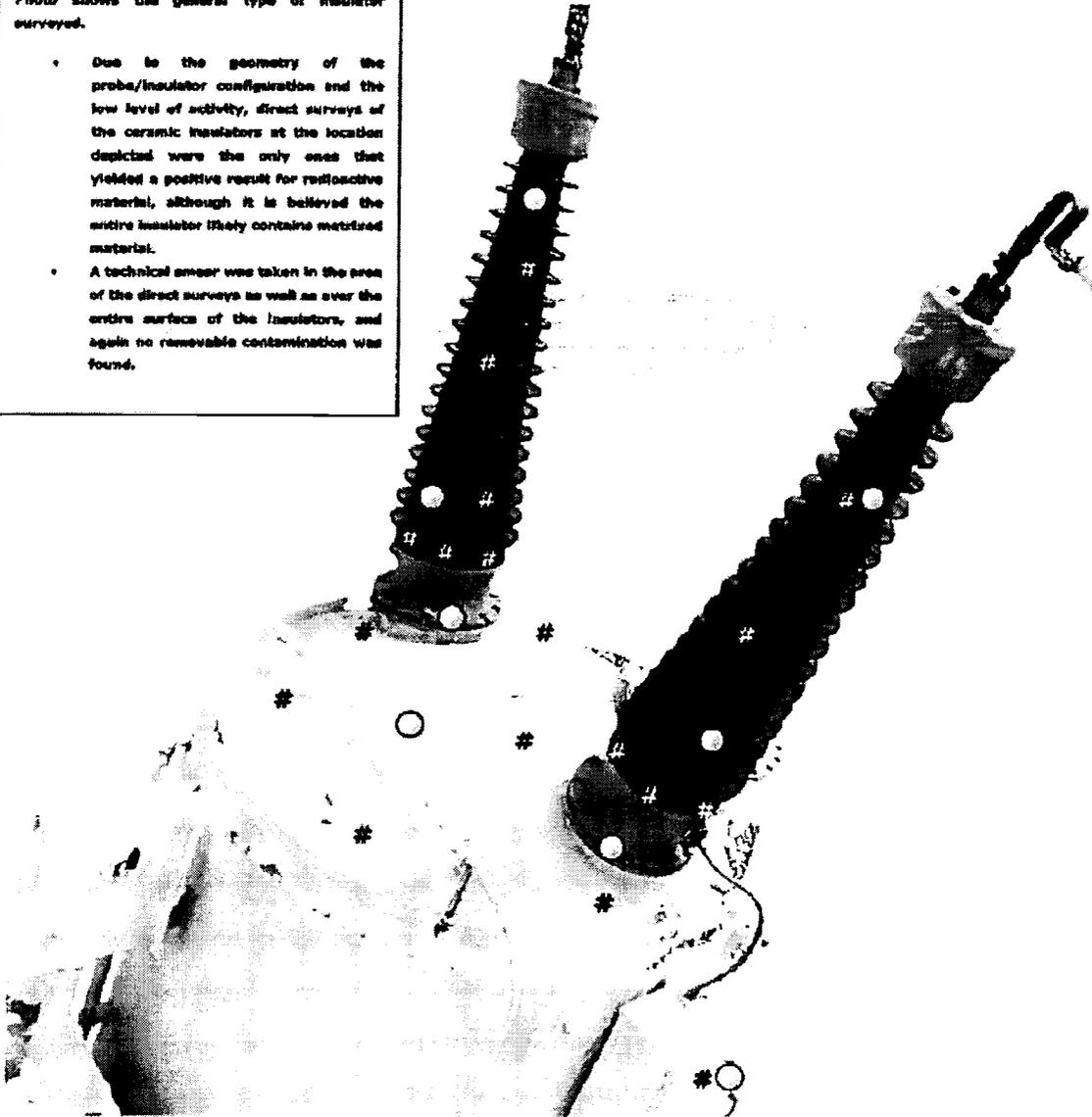
Location	Contact Readings		30 cm Readings	
	$\beta$ (mrad/hr) (WO-WC) X CF = DR	$\gamma$ (mR/hr) WC X CF = DR	$\beta$ (mrad/hr) (WO-WC) X CF = DR	$\gamma$ (mR/hr) WC X CF = DR
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

**Additional Information**  
(Drawing, Map, Etc.)

**Photo of Insulators**

Photo shows the general type of insulator surveyed.

- Due to the geometry of the probe/insulator configuration and the low level of activity, direct surveys of the ceramic insulators at the location depicted were the only ones that yielded a positive result for radioactive material, although it is believed the entire insulator likely contains wetted material.
- A technical smear was taken in the area of the direct surveys as well as over the entire surface of the insulators, and again no removable contamination was found.



## **Attachment 5**

**Post-Demolition Visual Inspection of 151D Switch Yard (3 pages)**



174454

**^WCH Document Control**

---

**From:** McCurley, Clay D  
**Sent:** Wednesday, January 29, 2014 3:44 PM  
**To:** ^WCH Document Control  
**Subject:** Post Demolition Visual Inspection of 151-D Switchyard

**Attachments:** Visual Inspection Photos 151-D Switchyard 01-16-2014.doc

Folks. Please chron this email with its attachment (in color) per the subject and let me know which CCN has been assigned. Thanks. Clay

---

**From:** McCurley, Clay D  
**Sent:** Wednesday, January 29, 2014 12:12 PM  
**To:** Allen, Mark E  
**Subject:** Post Demolition Visual Inspection of 151-D Switchyard

Mark. I conducted a visual inspection of the 151-D switch yard earlier this month. This email documents my findings. I did not observe any anomalies. Attached are photographs I took of the switch yard while I was there. We left two concrete vaults (located between the primary substation building and the oil circuit breaker (OCB) pads on the south end of the switch yard) which were greater than 3-feet below-grade. Backfill material was placed in the larger excavated hole to eliminate safety concerns associated with steepened edges (see Photo 1 in attachment 2). The rest of the area was slightly wet (from heavy morning dew) which made it difficult to determine if soil discoloration was due to oil or water. The two ground stains, visible in historical aerial photos along the railroad spur, were not obvious although I did observe some discoloration in that area that could have been one of the stains. A review of recent aerial photos shows the stains were covered during or soon after completing demolition of the 151-D primary substation building in April, 2013. The rest of the area appears clean.

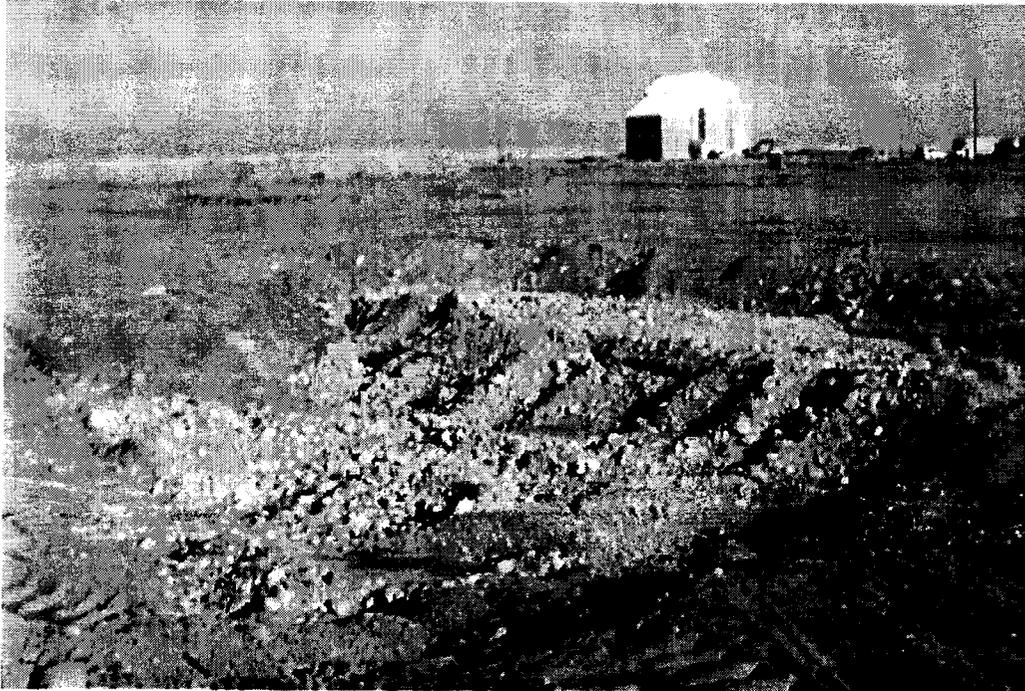
Contact me if you have any questions.  
Clay



Visual Inspection  
Photos 151-D...

**Post-Demolition Visual Inspection of 151D Switchyard**  
January 16, 2014

**Photo 1. Backfill material over below-grade vault near southwest corner of yard.**



**Photo 2. Former switch yard facing northeast from southwest corner**



**Post-Demolition Visual Inspection of 151D Switchyard  
January 16, 2014**

**Photo 3. Former switch yard facing northwest from southeast corner.**



**Photo 4. Former switch yard facing north from southeast corner.**



## **Attachment 6**

**151D Switch Yard GPS Surveys (6 pages)**

# GPS Pre-Demo Survey Report for the 151D Building

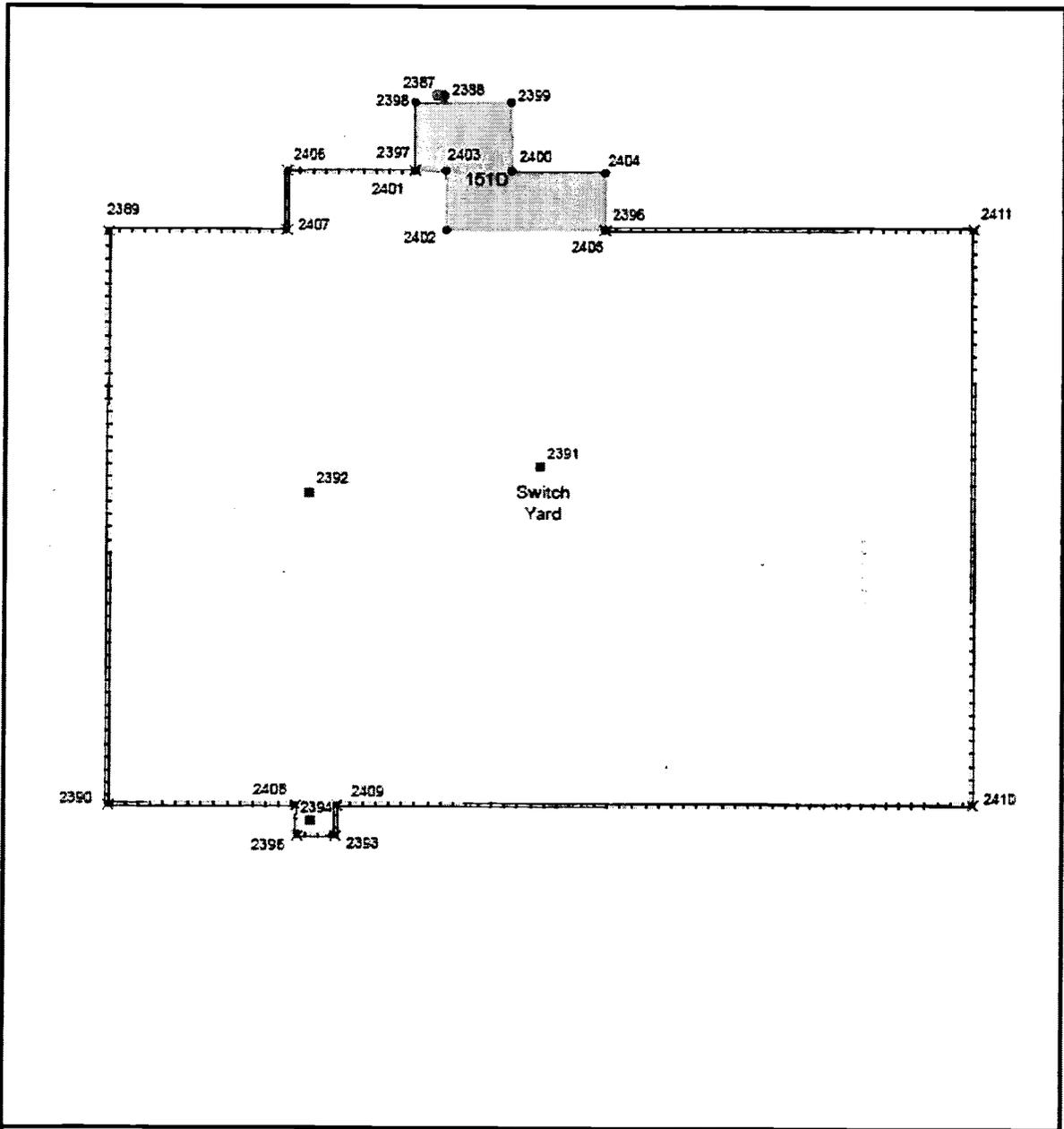
**Project : 100D-020713**

User name	maye	Date & Time	11:58:44 AM 4/16/2013
Coordinate System	US State Plane 1983 (WGS 84)	Zone	Washington South 4602
Project Datum	NAVD88	Geoid Model	Not selected
Vertical Datum	Meters		
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

---

Survey Project Name: Pre-Demo Mapping for the 151D Building  
 Date: 2/11/2013  
 Equipment: 5800  
 Survey Purpose: Map building corners and surrounding features  
 Requested By: Mark Allen  
 Location: 100D  
 Charge Code:  
 Field Surveyor: Margu Aye  
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11  
 Survey Equipment Used: 5800  
 Control Monuments Used: NSWB-044  
 Survey Method: RTK  
 Horizontal Precision: .020m  
 Vertical Precision: .050m  
 Fieldwork Start Date: 2/7/13  
 Fieldwork Completion Date: 2/7/13  
 Notes:

name_id	Feat_Code	Northing	Easting	Elevation
2387	French Drain	151393.868	573520.119	142.81
2388	French Drain	151393.756	573519.001	142.762
2389	fence-corner	151372.334	573466.958	142.987
2390	fence-corner	151280.684	573467.262	143.293
2391	conf-space-axs	151334.663	573536.593	142.688
2392	conf-space-axs	151330.459	573499.079	142.738
2393	fence-corner-top	151275.723	573503.475	143.232
2394	fence-corner-top	151275.77	573497.206	143.28
2395	conf-space-axs	151278.137	573499.412	143.06
2396	fence-end	151372.496	573545.873	142.796
2397	fence-end	151381.795	573515.431	142.728
2398	building corner	151392.692	151392.692	142.703
2399	building corner	151392.741	151392.741	142.666
2400	building corner	151381.757	151381.757	142.766
2401	building corner	151381.804	151381.804	142.728
2402	building corner	151372.401	151372.401	142.882
2403	building corner	151381.789	151381.789	142.728
2404	building corner	151381.711	151381.711	142.759
2405	building corner	151372.481	151372.481	142.796
2406	fence-corner	151381.867	151381.867	142.623
2407	fence-corner	151372.371	151372.371	142.664
2408	fence-corner	151280.59	151280.59	142.853
2409	fence-corner	151280.608	151280.608	142.897
2410	fence-corner	151280.882	151280.882	142.841
2411	fence-corner	151372.669	151372.669	142.722



GPS Pre Demo Locations (See Survey Report for Point Details):

- Building Corner
- × Fence Corner
- ⊙ French Drain
- Confined Space Access

151D Building - Pre Demolition Location

### Pre-Demo Survey for the 151D Building



W:\Projects\2011\GIS\151D\151D-Demo\Map Data\151D-Demo.mxd Date: 11/15/2013

# GPS Post Demo Survey Report for 151-D Switch Yard

Project : Post-substation

Job 1264

User name	msaye	Date & Time	4:22:40 PM 1/20/2014
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum		Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

---

Survey Project Name: 151D Switch Yard  
 Date: 1/20/2014  
 Equipment: 5800  
 Survey Purpose: Map the post demo excavation  
 Requested By: Mark Allen  
 Location: 100D  
 Charge Code:  
 Field Surveyor: Margo Aye  
 Survey Software Used: Trimble Comnatics V1.63  
 Survey Equipment Used: 5800  
 Control Monuments Used: D-Hanford Monument (at Gravel Pit)  
 Survey Method: RTK  
 Horizontal Precision: .020m  
 Vertical Precision: .050m  
 Fieldwork Start Date: 11/16/14  
 Fieldwork Completion Date: 11/16/14

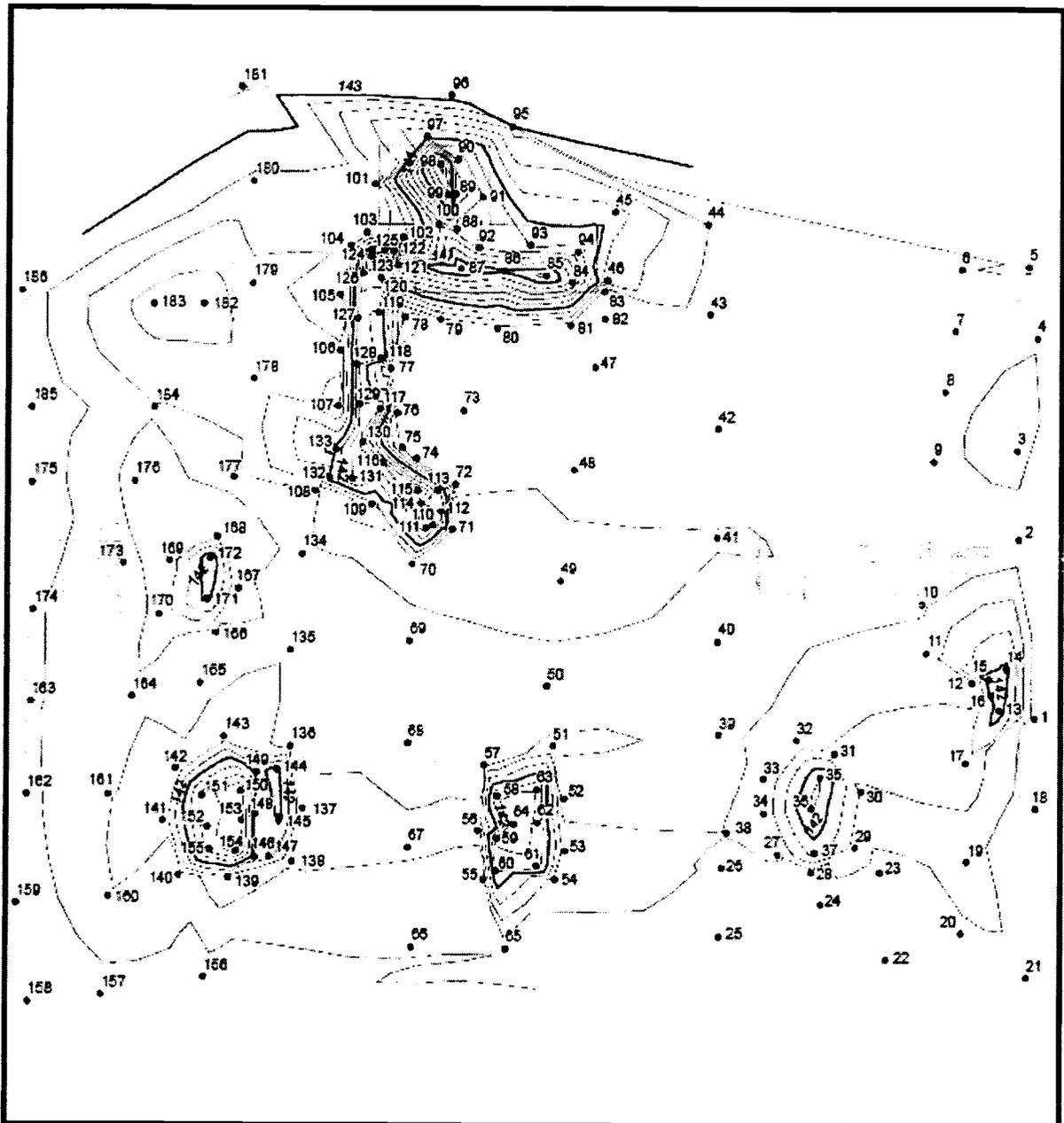
Notes:  
 Because the excavation was so shallow and flat, most points are considered "daylight". The 151D (building) post demo survey was done prior to this, however I recorded the area again as conditions had changed in the building area.

Name	Northing	Easting	Elevation	Feature Code	Description
1	151313.222m	573607.532m	142.693m	top	
2	151338.171m	573605.237m	142.769m	top	
3	151350.490m	573605.020m	142.472m	top	
4	151366.103m	573607.753m	142.619m	top	
5	151376.016m	573606.520m	142.817m	top	
6	151375.606m	573597.144m	142.795m	top	
7	151367.090m	573596.318m	142.647m	top	
8	151358.716m	573594.989m	142.672m	top	
9	151348.925m	573593.389m	142.673m	top	
10	151329.144m	573591.777m	142.631m	top	
11	151327.233m	573592.438m	142.504m	top	
12	151318.136m	573598.823m	142.458m	top	
13	151314.335m	573602.595m	141.902m	top	
14	151320.017m	573603.550m	141.956m	top	
15	151318.679m	573601.195m	141.915m	top	
16	151316.497m	573601.478m	141.948m	top	
17	151306.884m	573597.934m	142.272m	top	
18	151300.618m	573607.660m	142.754m	top	
19	151293.190m	573598.214m	142.539m	top	
20	151283.190m	573597.333m	142.623m	top	
21	151276.997m	573606.462m	142.640m	top	
22	151279.481m	573586.888m	142.675m	top	
23	151291.630m	573586.021m	142.680m	top	
24	151287.105m	573577.786m	142.711m	top	
25	151282.528m	573563.375m	142.716m	top	
26	151292.171m	573563.734m	142.622m	top	
27	151294.071m	573571.624m	142.590m	top	
28	151291.644m	573576.328m	142.600m	top	
29	151295.118m	573587.568m	142.478m	top	
30	151302.922m	573593.318m	142.422m	top	
31	151308.157m	573579.584m	142.331m	top	
32	151318.000m	573574.228m	142.563m	top	
33	151304.634m	573569.549m	142.590m	top	

151D Primary Electrical Substation

34	151299.750m	573569.610m	142.555m	top
35	151304.807m	573577.555m	141.802m	top
36	151300.550m	573576.280m	141.775m	top
37	151294.361m	573576.789m	142.108m	top
38	151297.872m	573564.379m	142.598m	top
39	151310.767m	573563.279m	142.617m	top
40	151323.787m	573563.072m	142.674m	top
41	151338.315m	573562.939m	142.588m	top
42	151353.453m	573563.052m	142.740m	top
43	151369.314m	573561.881m	142.694m	top
44	151381.796m	573561.518m	142.599m	top
45	151383.597m	573548.428m	142.136m	top
46	151374.094m	573547.342m	142.287m	top
47	151361.950m	573545.687m	142.662m	top
48	151347.699m	573542.833m	142.685m	top
49	151332.189m	573540.969m	142.496m	top
50	151317.524m	573539.155m	142.677m	top
51	151309.236m	573540.044m	142.580m	top
52	151301.772m	573541.568m	142.675m	top
53	151294.527m	573541.710m	142.498m	top
54	151290.606m	573540.165m	142.468m	top
55	151290.541m	573530.462m	142.662m	top
56	151297.349m	573529.643m	142.575m	top
57	151306.544m	573530.514m	142.631m	top
58	151302.178m	573532.166m	141.622m	top
59	151296.311m	573532.280m	141.530m	top
60	151291.758m	573532.179m	141.803m	top
61	151292.461m	573537.790m	141.653m	top
62	151298.481m	573537.941m	141.628m	top
63	151303.084m	573537.870m	141.610m	top
64	151299.288m	573536.655m	141.492m	top
65	151280.866m	573533.536m	142.743m	top
66	151281.021m	573528.558m	142.752m	top
67	151294.942m	573528.008m	142.578m	top
68	151309.566m	573519.912m	142.648m	top
69	151323.802m	573520.138m	142.657m	top
70	151334.526m	573520.453m	142.537m	top
71	151339.385m	573526.077m	142.610m	top
72	151345.693m	573526.826m	142.673m	top
73	151355.949m	573527.571m	142.625m	top
74	151349.269m	573520.944m	142.715m	top
75	151350.784m	573519.101m	142.695m	top
76	151355.601m	573518.348m	142.677m	top
77	151361.781m	573517.429m	142.645m	top
78	151368.918m	573519.388m	142.990m	top
79	151368.623m	573524.217m	142.626m	top
80	151367.332m	573532.118m	142.696m	top
81	151367.745m	573542.275m	142.727m	top
82	151368.763m	573547.001m	142.802m	top
83	151372.523m	573547.011m	142.723m	top
84	151373.760m	573542.456m	141.249m	top
85	151374.685m	573538.838m	140.744m	top
86	151375.378m	573533.865m	140.975m	top
87	151375.637m	573527.102m	140.794m	top
88	151381.165m	573526.438m	141.709m	top
89	151386.038m	573526.322m	141.272m	top
90	151390.763m	573526.539m	142.486m	top
91	151385.528m	573530.200m	141.611m	top
92	151378.523m	573529.451m	141.587m	top
93	151378.961m	573536.717m	141.823m	top
94	151378.001m	573543.174m	141.721m	top
95	151395.323m	573534.154m	142.668m	top
96	151399.741m	573525.662m	142.130m	top
97	151393.973m	573522.221m	142.038m	top
98	151390.126m	573524.131m	140.309m	top
99	151385.943m	573525.288m	140.624m	top
100	151381.849m	573523.879m	142.652m	top
101	151387.384m	573515.202m	142.691m	top
102	151380.041m	573519.044m	142.517m	top
103	151380.709m	573513.935m	142.698m	top
104	151378.822m	573511.838m	142.615m	top
105	151372.016m	573510.305m	142.690m	top
106	151364.289m	573510.279m	142.583m	top
107	151356.546m	573510.135m	142.624m	top
108	151344.728m	573507.821m	142.624m	top
109	151342.813m	573514.820m	142.287m	top
110	151339.542m	573522.289m	142.489m	top

111	151340.051m	573523.298m	141.380m	toe
112	151341.886m	573524.410m	141.624m	toe
113	151344.792m	573523.968m	141.707m	toe
114	151343.071m	573521.637m	141.602m	toe
115	151344.786m	573521.154m	141.128m	toe
116	151348.708m	573516.326m	141.394m	toe
117	151356.214m	573515.906m	141.391m	toe
118	151363.210m	573515.999m	141.822m	toe
119	151369.523m	573515.653m	141.830m	toe
120	151374.398m	573515.901m	141.507m	toe
121	151376.209m	573518.251m	141.144m	toe
122	151378.051m	573517.793m	141.220m	toe
123	151377.316m	573514.642m	143.177m	toe
124	151378.155m	573514.665m	143.842m	conc-top
125	151378.310m	573516.431m	147.835m	conc-top
126	151374.982m	573513.518m	141.479m	toe
127	151368.748m	573512.772m	141.763m	toe
128	151362.329m	573512.592m	141.717m	toe
129	151356.781m	573513.035m	141.594m	toe
130	151351.544m	573513.506m	141.349m	toe
131	151346.462m	573512.149m	141.595m	toe
132	151346.533m	573509.058m	141.903m	toe
133	151350.450m	573509.799m	141.929m	toe
134	151335.959m	573505.237m	142.653m	top
135	151322.563m	573503.684m	142.618m	top
136	151309.069m	573503.759m	142.642m	top
137	151300.448m	573505.475m	142.552m	top
138	151292.973m	573503.853m	142.580m	top
139	151290.703m	573495.100m	142.458m	top
140	151291.074m	573488.330m	142.706m	top
141	151298.730m	573486.018m	142.549m	top
142	151305.987m	573487.868m	142.574m	top
143	151310.459m	573494.468m	142.507m	top
144	151305.780m	573501.763m	141.928m	top
145	151299.145m	573502.305m	141.969m	top
146	151293.673m	573500.740m	142.135m	top
147	151293.602m	573498.749m	142.112m	top
148	151299.545m	573498.829m	142.145m	top
149	151305.462m	573498.941m	142.064m	top
150	151302.773m	573496.787m	141.220m	toe
151	151302.132m	573491.892m	141.490m	toe
152	151297.831m	573492.297m	141.435m	toe
153	151298.749m	573486.938m	141.322m	toe
154	151294.423m	573486.123m	141.334m	toe
155	151294.652m	573492.627m	141.485m	toe
156	151276.818m	573491.835m	142.907m	top
157	151274.322m	573477.618m	142.889m	top
158	151273.411m	573467.424m	142.965m	top
159	151287.209m	573465.722m	142.963m	top
160	151288.111m	573478.500m	142.605m	top
161	151302.253m	573478.464m	142.605m	top
162	151302.315m	573467.144m	142.846m	top
163	151315.304m	573467.683m	142.827m	top
164	151316.034m	573481.672m	142.611m	top
165	151317.943m	573481.284m	142.649m	top
166	151324.938m	573483.345m	142.604m	top
167	151331.117m	573496.363m	142.584m	top
168	151338.339m	573493.475m	142.456m	top
169	151334.980m	573486.858m	142.522m	top
170	151327.470m	573485.383m	142.574m	top
171	151329.776m	573492.139m	141.925m	top
172	151335.253m	573492.562m	141.834m	top
173	151334.615m	573480.412m	142.645m	top
174	151328.082m	573467.975m	142.825m	top
175	151345.847m	573467.692m	142.929m	top
176	151346.050m	573481.946m	142.538m	top
177	151346.685m	573495.718m	142.653m	top
178	151360.311m	573498.356m	142.513m	top
179	151373.575m	573488.222m	142.542m	top
180	151387.746m	573498.272m	142.753m	top
181	151400.841m	573495.562m	143.220m	top
182	151370.751m	573491.490m	142.279m	top
183	151370.700m	573484.526m	142.291m	top
184	151356.293m	573464.634m	142.612m	top
185	151356.266m	573467.673m	142.960m	top
186	151372.525m	573468.165m	142.917m	top
d-har-mon2	150848.702m	573855.276m	143.923m	cp



**GPS Point Locations:**

- See Survey Report for Point Details
- Major Contour Interval 1 meters
- Minor Contour Interval .2 meters
- 151D Building Location- (Pre Demolition)
- 151D Perimeter Fence (Pre-Demolition)

**Post Demo Survey for the  
151D Switch Yard**



0 10 20 40 Meters

ACR:RHS01@cham.marye.ark.mil/100/pe2000-151D-Sub.mxd 08/11/2014

151D Primary Electrical Substation

# Attachment 20

174596

**^WCH Document Control**

**From:** Saueressig, Daniel G  
**Sent:** Wednesday, February 12, 2014 4:04 PM  
**To:** ^WCH Document Control  
**Subject:** FW: 100-D AND H REVEGETATION

Please provide a chron number. This email documents a regulatory approval.

Thanks,

Dan Saueressig  
 FR Environmental Project Lead  
 Washington Closure Hanford  
 521-5326

---

**From:** Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
**Sent:** Wednesday, February 12, 2014 3:42 PM  
**To:** Saueressig, Daniel G  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: 100-D AND H REVEGETATION

From: Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
 Sent: Wednesday, February 12, 2014 3:42 PM  
 To: Saueressig, Daniel G

Dan,

I concur with the revegetation at 100-D-50:1 continuing through 2/21.

Artie Kapell  
 Washington State Department of Ecology  
 Nuclear Waste Program  
 (509) 372-7895  
[akap461@ecy.wa.gov](mailto:akap461@ecy.wa.gov)

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**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Wednesday, February 12, 2014 2:34 PM  
**To:** Kapell, Arthur (ECY)  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: 100-D AND H REVEGETATION

Artie, the revegetation crew has asked for another week (through February 21) to complete revegetation at 100-D-50:1. The ground was too frozen to finish the revegetation and the recent quick thaw has made the area too muddy to hydroseed (the hydroseeder would sink and get stuck in the mud). In addition, the wind is too great to spray the slope of the site.

Let me know if you concur with this additional week extension.

2/13/2014

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
**Sent:** Tuesday, February 04, 2014 7:49 AM  
**To:** Saueressig, Daniel G  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: 100-D AND H REVEGETATION

Dan,

Provided the revegetation can be completed by next week, I am okay with the delay. Were any of the sites that were delayed last year in need of revegetation this year?

Artie Kapell  
Washington State Department of Ecology  
Nuclear Waste Program  
(509) 372-7895  
[akap461@ecy.wa.gov](mailto:akap461@ecy.wa.gov)

---

**From:** Saueressig, Daniel G [mailto:dqsauere@wch-rcc.com]  
**Sent:** Monday, February 03, 2014 2:45 PM  
**To:** Kapell, Arthur (ECY)  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: 100-D AND H REVEGETATION

Artie, similar to the request below, I'd like to request your approval to revegetate 100-D-50:1 in February. The site has been backfilled and was ripped in preparation for revegetation but the wet weather last week precluded the ability to hydroseed the steep portion of the site heading down towards the old 100-D-8 outfall area. We should be able to get the site revegetated this week or the following week at the latest. We will monitor the area similar to what was agreed to in the last request below.

Thanks and give me a call if you have any questions.

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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. Daniel G  
January 31, 2013 12:41 PM

C; Glossbrenner, Ellwood T; Warren, David J  
) AND H REVEGETATION

Hi Artie, I would like to request your approval to conduct some revegetation activities at 100-D and 100-H in February and possibly into March 2013. Appendix H of the RDR/RAWP (DOE/RL-96-17), Revegetation Plan for the 100 Areas, specifies a planting window of November through January of each year, although it also states that the plan is generic and that site specific conditions will be evaluated and adjustments made when necessary.

Delays associated with weather and labor issues have necessitated this request to extend the window for revegetation. Our revegetation subject matter expert believes that the soil moisture content will remain conducive to conducting this activity through March 2013 and if conditions change, the sites would be manually watered to ensure viability of the seeds and seedlings. In addition, these sites will be evaluated in the fall to ascertain the success of the revegetation effort and if the plants did not take as determined by the criteria in the Revegetation Plan, the sites would be revegetated again during the next planting window (November 2013 through January 2014). We currently have personnel and materials (seed and seedlings) available onsite to conduct this work and would like to accomplish this task while the materials are available.

The sites impacted include 100-H-37, 100-D-14, 100-D-50:4, 100-D-50:8, 100-D-56, 100-D-65, 100-D-66, 116-D-5, 116-DR-5 and 118-D-6.

Let me know if you concur and I'll document the agreement at the next UMM meeting.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

# Attachment 21

174598

**^WCH Document Control**

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**From:** Saueressig, Daniel G  
**Sent:** Thursday, February 13, 2014 6:06 AM  
**To:** ^WCH Document Control  
**Subject:** FW: REQUEST FOR APPROVAL CERCLA WASTE CONTAINER STORAGE AREAS AT 100-D, 100-H AND BORROW PIT 23

Please provide a chron number. This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
**Sent:** Wednesday, February 12, 2014 4:16 PM  
**To:** Saueressig, Daniel G  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: REQUEST FOR APPROVAL CERCLA WASTE CONTAINER STORAGE AREAS AT 100-D, 100-H AND BORROW PIT 23

Dan,

I am sending my concurrence for extending by one year approval of the 100-D container storage area. As the area was first used on February 20, 2013, this will extend its use up until February 20, 2015. Let me know if you have any questions.

Artie Kapell  
Washington State Department of Ecology  
Nuclear Waste Program  
(509) 372-7895  
[akap461@ecy.wa.gov](mailto:akap461@ecy.wa.gov)

---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Wednesday, February 12, 2014 2:43 PM  
**To:** Kapell, Arthur (ECY)  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: REQUEST FOR APPROVAL CERCLA WASTE CONTAINER STORAGE AREAS AT 100-D, 100-H AND BORROW PIT 23

Artie, I'd like to request your approval for a 1 year extension to the 100-D container storage area originally approved below. The area was first used on February 20, 2013 and although there is currently no waste being

2/13/2014

stored in the area, there is a potential need for this area during ongoing remediation activities at 100-D to store waste from equipment spills and confirmatory sampling events. Let me know if you concur with the one year extension.

Thanks and give me a call if you have any questions.

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
**Sent:** Thursday, October 04, 2012 9:26 AM  
**To:** Winterhalder, John A  
**Cc:** Saueressig, Daniel G; Harrison, Robert P; Boyd, Alicia; Post, Thomas C  
**Subject:** RE: REQUEST FOR APPROVAL CERCLA WASTE CONTAINER STORAGE AREAS AT 100-D, 100-H AND BORROW PIT 23

John,

This email is to approve your request to establish three container storage areas at the 100-D and 100-H areas as described in your email. The locations are described in your email as follows:

The 100-D container storage area would be established very near the shippers trailer and packaging tent at the Container Transfer Area. The 100-H waste container storage area would be situated a short distance west of the packaging tent, across the road from the Container Transfer Area. The Pit 23 waste container storage area would be located within the footprint of the borrow pit. The first two areas are depicted in the following aerial photographs. Please provide either an aerial photograph depicting the location of the third area within the Pit 23 boundary or the coordinates.

Each of the areas may operate for up to one year from the date(s) that the first drums are stored there. There is the possibility of an extension for up to one year with the approval of Ecology. Please provide notification as to when storage has begun at each of these areas.

You may store no more than ten (10) 55-gallon drums of waste at each of these container storage areas at any one time. The waste may consist of spill cleanup material (hydraulic fluids and fuels combined with soil), personal protective equipment from verification and confirmatory sampling, oils and/or water drained from pipelines, and lead and other anomalous materials collected during remediation of waste sites. Please note that containerized waste that has been taken from a staging pile to a container storage area must reach its final disposal location (such as ERDF) before the expiration date for that staging pile.

The container storage area must be managed in compliance with the Washington Administrative Code container management requirements, including WAC 173-303-630. The following is a summary of these requirements. Please refer to the regulations for the complete requirements.

WAC 173-303-630 (Use and Management of Containers)

Identification of containers

Label identifying major risk(s) associated with the container.

Management

The containers must always be closed except when adding or removing waste.

**Inspections**

At least weekly, the owner/operator must inspect the areas where containers are stored, and must keep an inspection log including the date and time of inspection, name and signature of inspector.

**Containment**

There must be a containment system that is:

Capable of holding leaks and spills

Includes a base underlying the containers

Can contain ten percent of the volume of all containers of free liquids or the volume of the largest container, whichever is greater

Is sloped or otherwise designed to drain and remove liquids unless the containers are elevated or otherwise protected from contact with accumulated liquids.

Container storage areas that do not contain free liquids and do not exhibit either the characteristic of ignitability or reactivity need not have a containment system provided that:

The storage area is sloped or designed and operated to drain and remove liquid resulting from precipitation, or

The containers are elevated or protected from contact with accumulated liquids.

**Closure**

At closure, all dangerous waste and residues must be removed from the containment system. Remaining containers and soil containing or contaminated with dangerous waste or dangerous waste residues must be decontaminated or removed.

Artie Kapeli

Nuclear Waste Program

Washington State Department of Ecology

(509) 372-7895 Office

(509) 372-7971 Fax

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**From:** Winterhalder, John A [<mailto:jawinter@wch-rcc.com>]

**Sent:** Wednesday, October 03, 2012 3:35 PM

**To:** Kapell, Arthur (ECY)

**Cc:** Winterhalder, John A; Saueressig, Daniel G

**Subject:** FW: REQUEST FOR APPROVAL CERCLA WASTE CONTAINER STORAGE AREAS AT 100-D, 100-H AND BORROW PIT 23

Artie -- I did mention "oils and water drained from pipelines" (see bold & underlined text below) in my request below the figure that follows. I copied what Dan sent to Wanda for 100-N for the sake of consistency. Although we hope not to encounter any free liquids, we would follow the requirements of WAC 173-303-630 should we in fact turn something up. The requirements would most likely be met by using DOT spec containers placed on a commercially available "spill pallet". As I said on the way back in from D Area this morning, we hope not to have to use any of these requested areas. But if we have a spill or encounter an anomaly in the field that is outside of an AOC, we need somewhere to go with it. This advance request seems like the best option available to us. If and when we do encounter something that needs to go into a container storage area, we will notify you promptly and document the start of the one-year clock. I hope you find this approach acceptable.

I still haven't been able to locate a map or photo of the borrow pit area that I can send. I found one but it says it exceeds the allowable size for the user (me) and it doesn't send. So until I can locate something usable or Dan comes through with a photo or two, I don't have anything to send you, other than the borrow pit's location at the

south east corner of the intersection of Route 1 and Route 4 (south east of the fire station at the same intersection). The container storage area would be located within boundary of Pit 23. I'll keep trying to find something and hopefull Dan will come back with a couple of useful photos.

Thanks!  
John

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er, John A  
ptember 25, 2012 2:21 PM

C; Winterhalder, John A  
EST FOR APPROVAL CERCLA WASTE CONTAINER STORAGE AREAS AT 100-D, 100-H AND BORROW PIT 23

Artie,

I am requesting your approval to set up CERCLA waste container storage areas at 100-D and 100-H as shown on the attached aerial photos. The 100-D container storage area would be established very near the shippers trailer and packaging tent at the Container Transfer Area. The 100-H waste container storage area would be situated a short distance west of the packaging tent, across the road from the Container Transfer Area. The Pit 23 waste container storage area would be located within the footprint of the borrow pit and I do not have a photo of that location. If you'd like, we can take a drive by these areas before you decide whether these locations are satisfactory.

Each of these areas could operate for up to 1 year, and it is estimated that up to ten (10) 55-gallon drums of waste could be stored at each location at any one time. It is possible that we may seek up to a 1 year extension for the storage area 100-D as work there is not expected to be complete until fiscal year 2014.

The types of waste that we expect to store includes spill cleanup material (hydraulic fluids and fuels combined with soil), personal protective clothing from confirmatory and verification sampling, oils and/or water drained from pipelines and potentially lead or other anomalous material encountered during remediation of various waste sites. The container storage areas will be managed in compliance with the substantive Washington Administrative Code container management requirements, including WAC 173-303-630 and -646(7).

Let me know if you concur or would like to take a drive by these locations.

Thank you,

John Winterhalder  
100-D/H FR Environmental Project Lead  
Washington Closure Hanford  
554-8933

<< File: Visio-100D Waste Cont Storage Area.pdf >>    << File: Visio-100H Waste Cont Storage Area.pdf >>

# Attachment 22

174490

**^WCH Document Control**

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**From:** Saueressig, Daniel G  
**Sent:** Monday, February 03, 2014 7:10 AM  
**To:** ^WCH Document Control  
**Subject:** FW: 100-D AIR MONITORING

Please provide a chron number. This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
**Sent:** Monday, February 03, 2014 7:07 AM  
**To:** Saueressig, Daniel G; Boyd, Alicia  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T; Boyd, Alicia; Boothe, Gabriel  
**Subject:** RE: 100-D AIR MONITORING

Dan,

The Washington Department of Health completed their review of the revised TEDE calculations based upon the removal of the ISRM pond. Their conclusion is that the addition of the ISRM does not add enough inventory to warrant additional monitoring. Ecology concurs with their recommendations. Please include these revised calculations to the 100-D air monitoring plan.

Artie Kapell  
Washington State Department of Ecology  
Nuclear Waste Program  
(509) 372-7895  
[akap461@ecy.wa.gov](mailto:akap461@ecy.wa.gov)

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**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Tuesday, January 28, 2014 3:44 PM  
**To:** Boyd, Alicia (ECY); Kapell, Arthur (ECY)  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** 100-D AIR MONITORING

Alicia/Artie, since we received the approval below to discontinue running the air monitors at 100-D based on the remaining inventory in scope at 100-D being below 0.1 mrem/yr, a survey performed in preparation for removal of the 147-D (ISRM pond) showed K-40 levels at six times background. WCH believes the elevated readings are naturally occurring radioactive material (NORM) that was concentrated in the pond over time. Based

2/3/2014

on the elevated readings, a sample was taken and the Total Effective Dose Equivalent (TEDE) calculation for the remaining radioactive waste sites at 100-D was revised to include the ISRM pond (attached). The ISRM pond is included in the General Facilities RAWP (DOE/RL-2010-34, Rev. 2) but was also included in the Interim Action ROD for the 100-HR-3 Operable Unit and subsequent 2003 ESD. As you will note in the attached calculation, the remaining inventory (including the ISRM pond) is well below 0.1 mrem/year (5.62E-03 mrem/yr), the trigger point that would require periodic confirmatory monitoring (perimeter air monitors). You'll also notice a small amount of Cs-137 accounted for in the TEDE calculation for 147-D, this was included because a Material at Risk (MAR) calculation (also attached) showed a very slight amount of Cs-137 in a previous sample. The MAR calculations are prepared to evaluate whether an emission estimate (TEDE calculation) is required for a given site.

We'd like to request your concurrence that addition of the ISRM pond does not invalidate the assumptions that were the basis for shutting down the air monitors at 100-D (TEDE calculation remains well below 0.1 mrem/yr).

Thanks and give me a call if you have any questions.

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Boyd, Alicia (ECY) [mailto:aboy461@ecy.wa.gov]  
**Sent:** Monday, September 30, 2013 3:24 PM  
**To:** Saueressig, Daniel G  
**Cc:** Kapell, Arthur; Elliott, Wanda; Menard, Nina; Boothe, Gabriel; Chance, Joanne C; Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: AIR MONITORS AT N, D and H

Dan,

The Washington Department of Health has reviewed your request to shut down ambient air monitors at 100-D, 100-H, and 100-N based upon updated TEDE calculations you reference in an email dated September 4, 2013. Their recommendation, outlined in the accompanying letter from Gabriel Boothe at WA DOH, is that the following air monitors may be removed: N467, N468, N514, N515, N508, N509, N510, N574, N102, N103, and N106.

These revisions to the TEDE calculations, and monitoring/reporting requirements are to be included in updates to the 100-D, 100-H, and 100-N air monitoring plans. Ecology concurs with their recommendations. Let me know if you have any questions.

Alicia L. Boyd  
Washington State Department of Ecology  
3100 Port of Benton Blvd  
Richland, WA 99352  
509-372-7934

---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Thursday, September 26, 2013 3:49 PM  
**To:** Kapell, Arthur (ECY); Boyd, Alicia (ECY)  
**Subject:** FW: AIR MONITORS AT N, D and H

Artie or Alicia, I was wondering if one of you could reply to the message below and attach the Department of Health approval to shut down our air monitors. Thanks a bunch, the only reason I'm asking is that we are planning to shut down the monitors on Monday.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Saueressig, Daniel G  
**Sent:** Wednesday, September 04, 2013 1:06 PM  
**To:** Elliott, Wanda; Kapell, Arthur; Gent, Phil  
**Cc:** Biebrich, Ernest J; Strom, Dean N; Winterhalder, John A; Wilkinson, Stephen G; Landon, Roger J  
**Subject:** AIR MONITORS AT N, D and H

Wanda/Artie/Phil,

We would like to request that the air monitors at 100-N, 100-D, and 100-H be shut down based on the provisions of the Remedial Design Report/Remedial Action Work Plans (RAWP) for these areas (DOE/RL-96-17, Revision 6 for 100-D/H and DOE/RL-2005-93, Revision 0) for 100-N). Routine radiological control surveys will continue to be performed as part of the radiological control program for all these areas. This will alleviate issues with obtaining power sources as work is completed, while still providing routine verification that radiological emissions are being adequately controlled as required by the air monitoring plans. Section 3.4.6 of the 100 Area RAWP (DOE/RL-96-17, Revision 6) states: "The substantive requirements applicable to radioactive air emissions resulting from remediation activities are to quantify potential emissions, monitor emissions, and identify and employ best available radionuclide control technology. Exemptions from these requirements may be requested if the potential-to-emit for the activity or emission unit would result in a total effective dose equivalent of less than 0.1 mrem/yr." Note: application of this exemption is already being used for remediation activities being conducted at 100-B at this time. Although the 100-N RAWP (DOE/RL-2005-93, Revision 0) does not contain the same language cited above, Washington Administrative Code (WAC) 246-247 is included as an Applicable or Relevant and Appropriate Requirement (ARAR) in Section 2.1.8 of the 100-N RAWP and it is believed that the exemption contained in WAC 246-247-020(2)(c) is applicable and can be utilized.

#### 100-N AREA:

The only waste sites with potential radiological inventories remaining to be remediated at the 100-N Area include 100-N-79, 100-N-82, 100-N-83, 100-N-84:2, 100-N-84:6 and 100-N-104. All of these waste sites except 100-N-82 are included in the Total Effective Dose Equivalent for the Remedial Action of the 100-N Area FCS (0100N-CA-V0100, Rev. 2). The calculation has a Total Effective Dose Equivalent (TEDE) of 3.44E-03 mrem/yr. 100-N-82 was included in the Total Effective Dose Equivalent for the Remedial Action of the 100N Area Waste Sites (0100N-CA-V0091, Rev. 0).

Based on a review of calculation 0100N-CA-V0091, 100-N-82 is an insignificant contributor to the total curies of all the waste sites in this calculation as shown below.

Isotope	All Sites Ci/yr	100-N-82 Ci/yr
Ba-137M	1.85E-01	5.33E-08
Co-60	6.77E-02	4.54E-07
Cs-137	1.96E-01	5.63E-08
Pu-238	2.43E-04	1.12E-09

Pu-239/240	1.74E-03	8.31E-09
Sr-90	1.65E-02	2.77E-07
Y-90	1.27E-02	2.77E-07

Both calculations combined results in a TEDE of 0.05484 mrem/yr, and since 100-N-82 is such a small contributor to the overall dose estimated in 0100N-CA-V0091, the actual PTE is much lower than 0.05 mrem/year. In addition, the radiologically contaminated portions of 100-N-84:2 and 100-N-84:6 have already been remediated (north and west of N Reactor), ongoing remediation at these sites have found no additional radiological contamination.

The TEDE from these sites is less than 0.1 mrem/yr; therefore, application of the exemption per the RAWP is being requested.

In addition, it is requested that 100-N-104 be added to the Air Monitoring Plan for the 100-N Remedial Action. This was the only site added to Revision 2 of calculation 0100N-CA-V0100 and has a TEDE of 1.0E-05.

#### 100-D AREA

The only waste sites with potential radiological inventories remaining to be remediated at the 100-D Area include 100-D-85:2, 100-D-86:1, 100-D-86:3, 100-D-102, 100-D-105, 1607-D2:5 and 100-D-104. All of these waste sites except 100-D-104 are included in the TEDE for 100-D/DR Waste Sites (0100D-CA-V0459, Revision 0). The calculation has a TEDE of 6.34E-03 mrem/yr. 100-D-104 is the only waste site remaining to be remediated that is included in the TEDE for the Remedial Action of the 100-D Area Waste Sites (0100D-CA-V0283, Revision 2). The TEDE for 100-D-104 can be calculated by subtracting Revision 2 TEDE from Revision 1 TEDE as the only modification to Revision 2 was to add 100-D-104.

- $9.48E-04$  mrem/yr (Rev. 2, 0100D-CA-V0283) -  $9.39E-04$  mrem/yr (Rev. 1, 0100D-CA-V0283) =  $9.0E-06$  mrem/yr

The combined dose of the waste sites remaining to be remediated is calculated as follow:

- $6.34E-03$  mrem/yr (0100D-CA-V0459) +  $9.0E-06$  mrem/yr (Rev. 2 - Rev. 1 of 0100D-CA-V0283) =  $6.35E-03$  mrem/yr

The TEDE from these sites is less than 0.1 mrem/yr; therefore, application of the exemption per the RAWP is being requested.

#### 100-H AREA

The only waste sites with potential radiological inventories remaining to be remediated at 100-H include 100-H-49:1, 100-H-51:6, 100-H-59, 100-H-28:2, 100-H-42, and 100-H-51:2 for a combined TEDE as follows:

- $1.2E-04$  mrem/yr: TEDE for the Remediation of the 100-H Failed Confirmatory Sites (0100H-CA-V0190)
- $2.39E-03$  mrem/yr: TEDE for the 100-H-42 and 100-H-51:2 Waste Sites (0100H-CA-V0181)
- $1.54E-03$  mrem/yr: TEDE for the Remedial Action of the 100-H Area FY 2009 Remaining Waste Sites (0100H-CA-V0100). NOTE: Dose is less as all waste sites included in this calculation are done with the exception of 100-H-28:2.

Total:  $4.05E-03$  mrem/yr

The TEDE from these sites is less than 0.1 mrem/yr; therefore, application of the exemption per the RAWP is being requested.

Copies of the air monitoring plans and air calculations will be provided. Please let me know if any additional information is needed to assist in the evaluation of this request.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

---

**From:** Danielson, Al (DOH) [<mailto:Al.Danielson@DOH.WA.GOV>]  
**Sent:** Thursday, August 01, 2013 9:55 AM  
**To:** Schmidt, John; Gent, Phil; Boothe, Gabriel  
**Cc:** Utley, Randy; Martell, John; Elliott, Wanda; Saueressig, Daniel G  
**Subject:** RE: AIR MONITORS AT N

Phil:

I discussed this with the RAES staff and advise continued monitoring of the site for 24/7. This will keep them compliant with the state and federal reg until we can get someone out to assess the PTE for the remaining work. If they can show a PTE of less than 0.1 mrem, they can go to periodic confirmatory monitoring.

We can probably get Gabriel Boothe, or myself, to visit the site and make an assessment before the end of August. Please have your staff contact Gabriel directly at 509 943-5217 to schedule a meeting. I can be reached via email by any of the numbers listed below if necessary.

Thanks

**Allan Danielson**

**Radioactive Air Emissions Section**

*Yakima Office Phone - 509 574-0198*

*Richland Office Phone - 509 946-0192*

*Cell Phone - 509 727-0645*

*Public Health - Always Working for a Safer and Healthier Washington*

---

**From:** Schmidt, John W (DOH)  
**Sent:** Wednesday, July 31, 2013 3:49 PM  
**To:** Danielson, Al (DOH)  
**Cc:** Utley, Randell J (DOH); Martell, P John (DOH)  
**Subject:** FW: AIR MONITORS AT N

Please think about this and we can discuss in the morning (when I'm in charge and can blame John M)

---

**From:** Gent, Philip (ECY)  
**Sent:** Wednesday, July 31, 2013 3:23 PM  
**To:** Schmidt, John W (DOH)  
**Cc:** Utley, Randell J (DOH)  
**Subject:** FW: AIR MONITORS AT N

John,

2/3/2014

Can you please advise.

**Philip Gent, PE**

Waste Management Section  
Nuclear Waste Program  
Washington Department of Ecology  
Phone: (509) 372-7983  
Email: [pgen461@ecy.wa.gov](mailto:pgen461@ecy.wa.gov)  
FAX: (509) 372-7971

---

**From:** Elliott, Wanda (ECY)  
**Sent:** Wednesday, July 31, 2013 2:06 PM  
**To:** Boyd, Alicia (ECY); Gent, Philip (ECY)  
**Cc:** Saueressig, Daniel G  
**Subject:** FW: AIR MONITORS AT N

FYI...let me know if you have any issues with this.

*Wanda Elliott*

(509) 372-7904

Environmental Scientist

Nuclear Waste Program

Washington State Department of Ecology

<< OLE Object: Picture (Device Independent Bitmap) >>

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**From:** Saueressig, Daniel G [<mailto:dgsauere@wch-rcc.com>]  
**Sent:** Wednesday, July 31, 2013 1:50 PM  
**To:** Elliott, Wanda (ECY)  
**Cc:** Chance, Joanne C; Biebrich, Ernest J  
**Subject:** AIR MONITORS AT N

Wanda, as we discussed earlier today, we will be losing permanent power to 2 air monitors (N102 and N106) at the end of August when CHPRC takes down the power for their old pump and treat infrastructure north of the 1301-N crib and trench. We plan to continue to operate these air monitors for the remainder of the project with generators. Since we will be using generators we plan to only operate these monitors during the work day (they will not be left running 24 hours a day as was the previous practice) and will only be operated during work on radiologically contaminated sites addressed by the air monitoring plan.

Can you run this by your air contact and ensure there are no concerns.

Thanks,

Dan Saueressig

FR Environmental Project Lead

Washington Closure Hanford

521-5326

# Attachment 23

174507

**^WCH Document Control**

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**From:** Saueressig, Daniel G  
**Sent:** Tuesday, February 04, 2014 1:17 PM  
**To:** ^WCH Document Control  
**Subject:** FW: 100-D AND H REVEGETATION

Please provide a chron number. This email documents a regulatory approval.

Thanks,

Dan Saueressig  
 FR Environmental Project Lead  
 Washington Closure Hanford  
 521-5326

---

**From:** Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
**Sent:** Tuesday, February 04, 2014 7:49 AM  
**To:** Saueressig, Daniel G  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: 100-D AND H REVEGETATION

Dan,

Provided the revegetation can be completed by next week, I am okay with the delay. Were any of the sites that were delayed last year in need of revegetation this year?

Artie Kapell  
 Washington State Department of Ecology  
 Nuclear Waste Program  
 (509) 372-7895  
[akap461@ecy.wa.gov](mailto:akap461@ecy.wa.gov)

---

**From:** Saueressig, Daniel G [mailto:dgsauere@wch-rcc.com]  
**Sent:** Monday, February 03, 2014 2:45 PM  
**To:** Kapell, Arthur (ECY)  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T  
**Subject:** RE: 100-D AND H REVEGETATION

Artie, similar to the request below, I'd like to request your approval to revegetate 100-D-50:1 in February. The site has been backfilled and was ripped in preparation for revegetation but the wet weather last week precluded the ability to hydroseed the steep portion of the site heading down towards the old 100-D-8 outfall area. We should be able to get the site revegetated this week or the following week at the latest. We will monitor the area similar

2/4/2014

to what was agreed to in the last request below.

Thanks and give me a call if you have any questions.

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

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**From:** Saueressig, Daniel G  
**Sent:** Thursday, January 31, 2013 12:41 PM  
**To:** Kapell, Arthur  
**Cc:** Post, Thomas C; Glossbrenner, Ellwood T; Warren, David J  
**Subject:** 100-D AND H REVEGETATION

Hi Artie, I would like to request your approval to conduct some revegetation activities at 100-D and 100-H in February and possibly into March 2013. Appendix H of the RDR/RAWP (DOE/RL-96-17), Revegetation Plan for the 100 Areas, specifies a planting window of November through January of each year, although it also states that the plan is generic and that site specific conditions will be evaluated and adjustments made when necessary.

Delays associated with weather and labor issues have necessitated this request to extend the window for revegetation. Our revegetation subject matter expert believes that the soil moisture content will remain conducive to conducting this activity through March 2013 and if conditions change, the sites would be manually watered to ensure viability of the seeds and seedlings. In addition, these sites will be evaluated in the fall to ascertain the success of the revegetation effort and if the plants did not take as determined by the criteria in the Revegetation Plan, the sites would be revegetated again during the next planting window (November 2013 through January 2014). We currently have personnel and materials (seed and seedlings) available onsite to conduct this work and would like to accomplish this task while the materials are available.

The sites impacted include 100-H-37, 100-D-14, 100-D-50:4, 100-D-50:8, 100-D-56, 100-D-65, 100-D-66, 116-D-5, 116-DR-5 and 118-D-6.

Let me know if you concur and I'll document the agreement at the next UMM.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

# Attachment 24

174382

**^WCH Document Control**

**From:** Saueressig, Daniel G  
**Sent:** Wednesday, January 22, 2014 6:04 AM  
**To:** ^WCH Document Control  
**Subject:** FW: Northeast corner of 100-D-100  
**Attachments:** RE Northeast corner of 100-D-100.rtf; Northeast wall characterization.pdf

Please provide a chron number (and include the attachments). This email documents a regulatory approval.

Thanks,

Dan Saueressig  
 FR Environmental Project Lead  
 Washington Closure Hanford  
 521-5326

---

**From:** Kapell, Arthur (ECY) [mailto:akap461@ECY.WA.GOV]  
**Sent:** Tuesday, January 21, 2014 11:59 AM  
**To:** Thompson, Wendy S; Neath, John P; Post, Thomas C; Crumpler, Joe; Glossbrenner, Ellwood T  
**Cc:** Callison, Stacey W; Strom, Dean N; Saueressig, Daniel G; Howell, Theresa Q  
**Subject:** RE: Northeast corner of 100-D-100

Wendy,

I am in agreement with your accompanying characterization strategy and path forward for the northeast wall.  
 Thanks for doing the write-up.

Artie Kapell  
 Washington State Department of Ecology  
 Nuclear Waste Program  
 (509) 372-7895  
[akap461@ecy.wa.gov](mailto:akap461@ecy.wa.gov)

---

**From:** Thompson, Wendy S [mailto:WSTHOMPS@wch-rcc.com]  
**Sent:** Monday, January 20, 2014 10:14 AM  
**To:** Neath, John P; Post, Thomas C; Crumpler, Dwayne (ECY); Kapell, Arthur (ECY); Glossbrenner, Ellwood T  
**Cc:** Callison, Stacey W; Strom, Dean N; Saueressig, Daniel G; Howell, Theresa Q  
**Subject:** Northeast corner of 100-D-100

Please review the attached draft characterization strategy/path forward for the northeast wall of the 100-D-100 excavation that has been developed based on our discussion in last week's interface meeting.

Does this look acceptable? I believe the project would like to proceed with the

1/22/2014

additional soil removal and would appreciate your approval of this strategy as soon as possible.

Thank you,  
Wendy

<< File: Northeast wall characterization.pdf >>

**From:** Neath, John P [john.neath@rl.doe.gov]  
**Sent:** Tuesday, January 21, 2014 12:48 PM  
**To:** Thompson, Wendy S; Crumpler, Joe; Kapell, Arthur  
**Cc:** Callison, Stacey W; Strom, Dean N; Saueressig, Daniel G; Howell, Theresa Q; Glossbrenner, Ellwood T; Post, Thomas C  
**Subject:** RE: Northeast corner of 100-D-100

I believe this plan is ok.

Tom and Ellwood are out of the office.

*John Neath*

River Corridor Closure Project

Richland Operations Office

U. S. Dept of Energy

(509)372-0649

---

**From:** Thompson, Wendy S [mailto:WSTHOMPS@wch-rcc.com]

**Sent:** Monday, January 20, 2014 10:14 AM

**To:** Neath, John P; Post, Thomas C; Crumpler, Joe; Kapell, Arthur; Glossbrenner, Ellwood T; Post, Thomas C

**Cc:** Callison, Stacey W; Strom, Dean N; Saueressig, Daniel G; Howell, Theresa Q; Callison, Stacey W; Strom, Dean N

**Subject:** Northeast corner of 100-D-100

Please review the attached draft characterization strategy/path forward for the northeast wall of the 100-D-100 excavation that has been developed based on our discussion in last week's interface meeting.

Does this look acceptable? I believe the project would like to proceed with the additional soil removal and would appreciate your approval of this strategy as soon as possible.

Thank you,  
Wendy

<< File: Northeast wall characterization.pdf >>

## **Characterization Strategy for the Northeast Wall of the 100-D-100 Excavation**

### **January 15, 2014**

Thirteen focused soil samples were collected as grab samples to evaluate residual hexavalent chromium concentrations in an area of discolored soil that was noted in the lower sidewall of the 100-D-100 excavation. These samples were collected at depths ranging from approximately 63 ft to 75 ft below surface grade (bsg). Nine of these samples exceed the soil cleanup criteria of 2 mg/kg (Figure 1). The Hanford/Ringold contact is noted at approximately 75 ft bsg.

Figure 2 shows the in-process sample results for hexavalent chromium (mg/kg) for each of the 5 ft sample lifts below a depth of 50 ft. An evaluation of this in-process sample data indicates that for the sidewalls within the excavation, only the lower sidewall at the northeast corner of the excavation has hexavalent chromium detected above the soil cleanup criteria. The data also supports a correlation with a source in the north portion of the excavation (i.e., 100-D-12 french drain and 100-D-56:2 transfer valve leak) and a larger, more centrally located source associated with the original stained surface soil identified as 100-D-100.

Considering this information, a decision was made to remove additional soil from the lower sidewall at the northeast corner of the excavation, within the constraints required to maintain safe excavation operations. After this additional excavation, a statistical sampling design will be used to evaluate the lower northeast excavation sidewall as a new and separate decision unit. These statistical samples will be used to evaluate the average concentration of hexavalent chromium and support a decision concerning whether or not additional soil removal may be necessary. Additionally, the samples will be collected and submitted for full laboratory protocol analyses of total chromium and hexavalent chromium in order to support use as verification samples. Figure 3 provides a map showing the sample area. Table 1 provides the coordinates for the samples.

If the data indicates that additional soil removal is not required, then this data will be used to support closeout of the northeast corner identified in Figure 3. The remaining sampling decision units identified in the verification sampling design (0100D-WI-G0066, Rev. 1) will be revised accordingly. Additionally, the focus sample (FS-1) identified in 0100D-WI-G066 (Rev. 1) will not be collected since the location is within the area of additional soil removal.

**Figure 1. Focused Sample Results for the Northeast Corner of the 100-D-100 Excavation.**

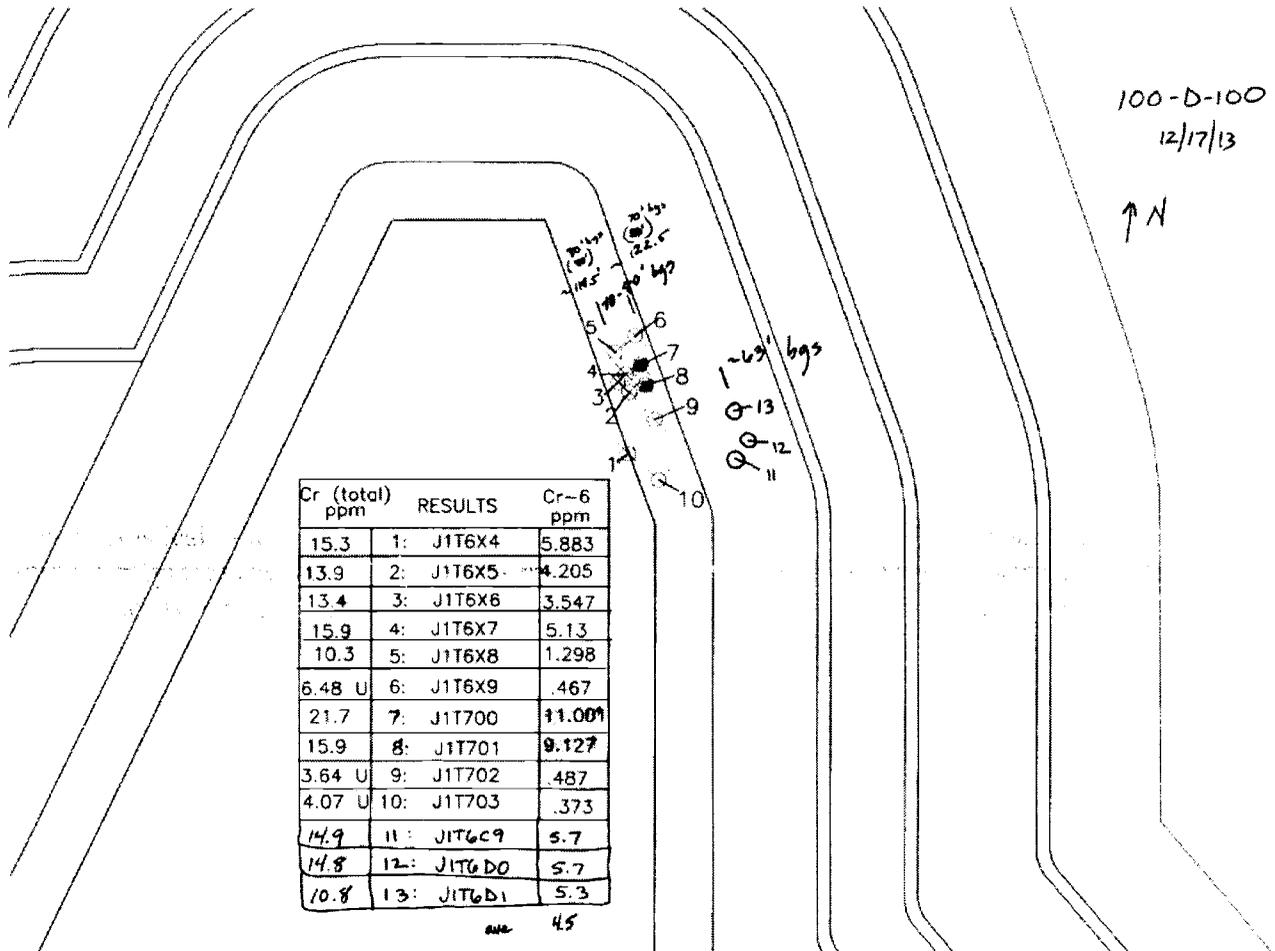
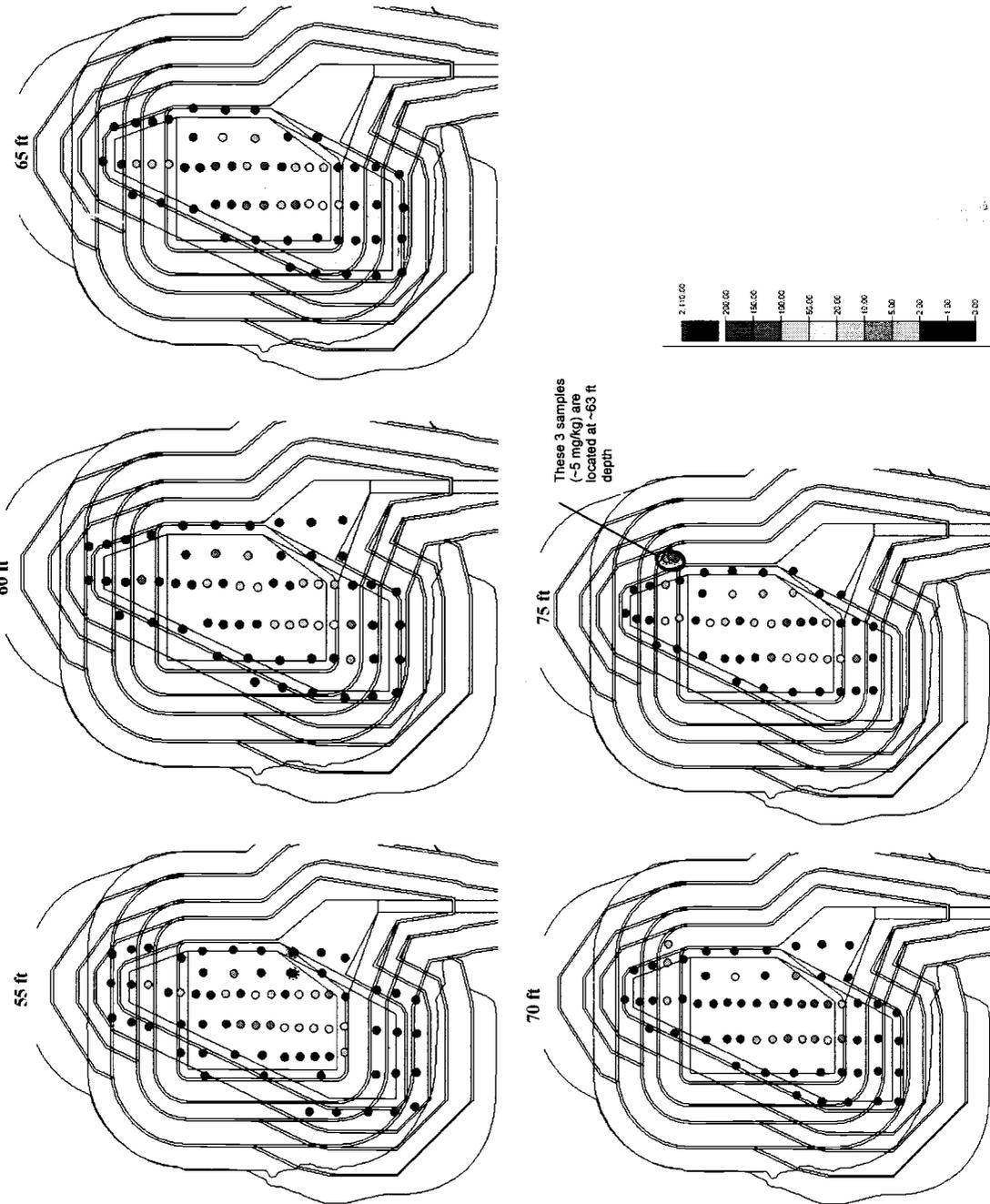
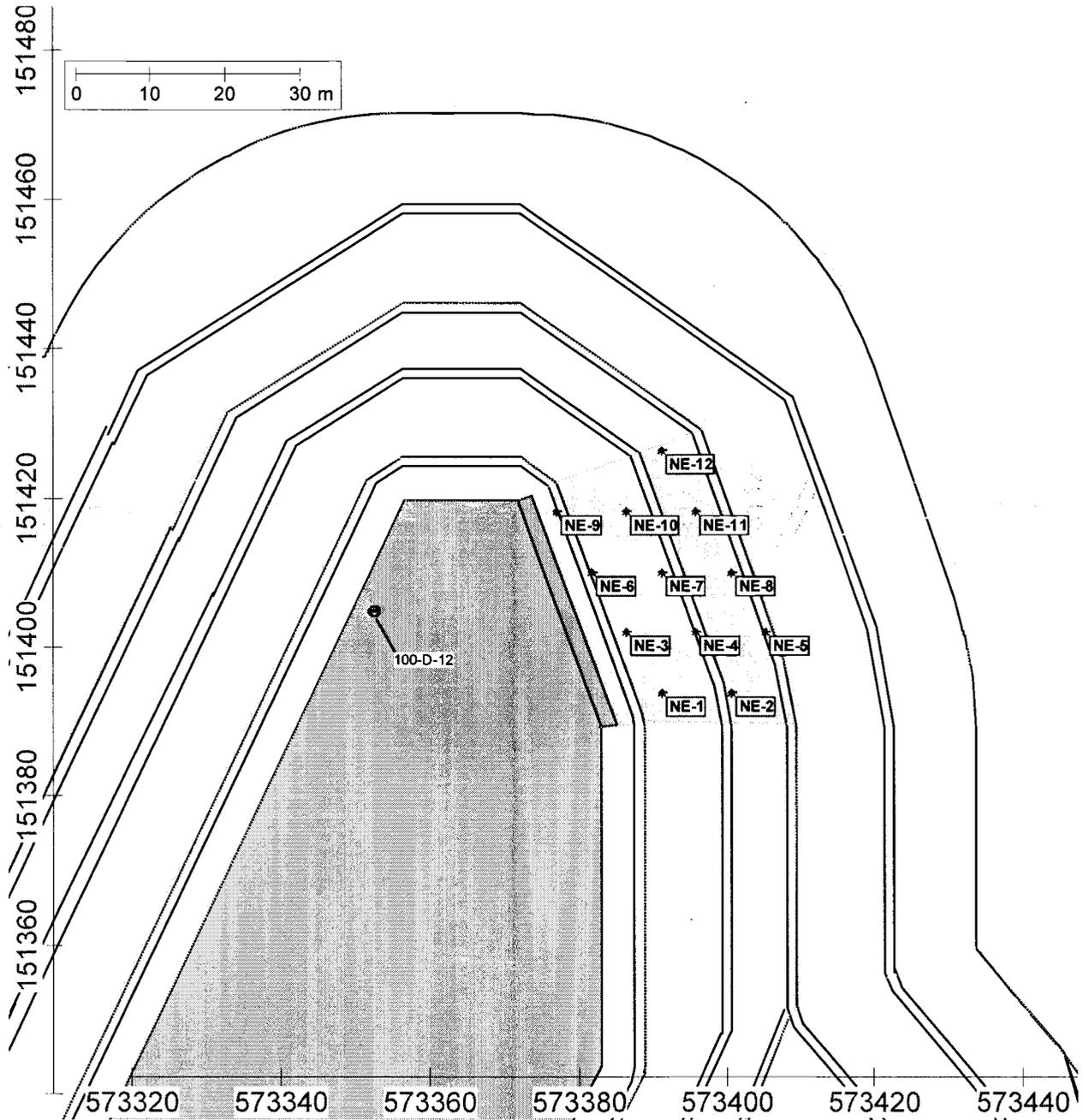


Figure 2. In-Process Sample Results for Hexavalent Chromium (mg/kg).



**Figure 3. Statistical Sample Locations for Evaluation of the Northeast Corner of the 100-D-100 Excavation.**



**Table 1. Sample Summary Table.**

Sample Location	HEIS Sample Number	Washington State Plane Coordinates		Sample Analysis
		Easting	Northing	
NE-1	TBD	573391.2	151393.9	Chromium (total) <sup>a</sup> , hexavalent chromium
NE-2	TBD	573400.6	151393.9	
NE-3	TBD	573386.4	151402.0	
NE-4	TBD	573395.9	151402.0	
NE-5	TBD	573405.3	151402.0	
NE-6	TBD	573381.7	151410.2	
NE-7	TBD	573391.2	151410.2	
NE-8	TBD	573400.6	151410.2	
NE-9	TBD	573377.0	151418.3	
NE-10	TBD	573386.4	151418.3	
NE-11	TBD	573395.9	151418.3	
NE-12	TBD	573391.2	151426.5	

<sup>a</sup> Analysis will be performed for the expanded list of ICP metals to include antimony, arsenic, barium, beryllium, boron, cadmium, chromium(total), cobalt, copper, lead, manganese, molybdenum, nickel, selenium, silver, vanadium, and zinc.

HEIS = Hanford Environmental Information System

ICP = inductively coupled plasma

NA = not applicable

TBD = to be determined

# Attachment 25

**^WCH Document Control**

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**From:** Saueressig, Daniel G  
**Sent:** Thursday, January 09, 2014 1:47 PM  
**To:** ^WCH Document Control  
**Subject:** ASBESTOS ENCOUNTERED AT H

Please provide a chron number. This email documents a regulatory agreement.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

-----Original Message-----

**From:** Guzzetti, Christopher [mailto:Guzzetti.Christopher@epa.gov]  
**Sent:** Wednesday, January 08, 2014 4:23 PM  
**To:** Saueressig, Daniel G; Strom, Dean N; Glossbrenner, Ellwood T; Kapell, Arthur  
**Subject:** FW: ASBESTOS ENCOUNTERED AT H

See message below from John.

Christopher J. Guzzetti  
Project Manager  
Hanford Project Office  
U.S. Environmental Protection Agency  
309 Bradley Boulevard, Suite 115  
Richland, WA 99352

Phone: (509) 376-9529  
Fax: (509) 376-2396  
Email: guzzetti.christopher@epa.gov

-----Original Message-----

**From:** Pavitt, John  
**Sent:** Wednesday, January 08, 2014 3:36 PM  
**To:** Guzzetti, Christopher  
**Subject:** RE: ASBESTOS ENCOUNTERED AT H

Hi Chris. The approach sounds appropriate to me. 61.145(c)(2) pertains to activities where sections of pipe are removed with asbestos still attached to the pipe (or other building component as the case may be). By following this approach the contractor is required to keep the material on the pipe adequately wet and after removing it from the ground place it immediately into leak tight wrapping, or, strip it prior to disposal. From the description provided, it sounds like they will do the former.

Even though this job is very small and is below the regulatory threshold, I do believe that the facility

has an Annual Notification on file with Benton County which addresses these types of small jobs that over the course of a year exceed the regulatory threshold. That means that they are required to comply with the NESHAP (it is a regulated project under NESHAP).

Thanks,

John Pavitt  
EPA Region 10, Alaska Operations Office  
(907) 271-3688

For general information on asbestos, see EPA's National website: <http://www2.epa.gov/asbestos>

Notifications for projects in Alaska, Idaho and Tribal Lands should be mailed to:  
Asbestos NESHAP Coordinator  
US EPA, Region 10 (OCE-127)  
1200 Sixth Ave., Suite 900  
Seattle, WA 98101

-----Original Message-----

From: Guzzetti, Christopher  
Sent: Wednesday, January 08, 2014 7:28 AM  
To: Pavitt, John  
Subject: FW: ASBESTOS ENCOUNTERED AT H

January 08, 2014  
ASBESTOS ENCOUNTERED AT H

Hello John,

I did see your email to Chris Strand about the BC area clear wells. Thank you. Here is another one that I got today. Their approach seems appropriate to me. What do you think?

Christopher J. Guzzetti  
Project Manager  
Hanford Project Office  
U.S. Environmental Protection Agency  
309 Bradley Boulevard, Suite 115  
Richland, WA 99352

Phone: (509) 376-9529  
Fax: (509) 376-2396  
Email: [guzzetti.christopher@epa.gov](mailto:guzzetti.christopher@epa.gov)

-----Original Message-----

From: Saueressig, Daniel G [mailto:[dgsauere@wch-rcc.com](mailto:dgsauere@wch-rcc.com)]  
Sent: Wednesday, January 08, 2014 6:47 AM  
To: Guzzetti, Christopher  
Cc: Kapell, Arthur; Glossbrenner, Ellwood T; Strom, Dean N  
Subject: ASBESTOS ENCOUNTERED AT H

Chris, we encountered what we thought was a concrete sewer line intersecting a portion of the 100-H-28:3 excavation on 12/17/13. When the pipe was breached it was found to contain small amounts of asbestos (TSI) surrounding a metal steam line. A small amount of asbestos (less than half a pound) fell to the ground when the pipe was breached. The pipe and asbestos were immediately

covered and the area was posted for asbestos controls while plans to remove the intersecting line are being finalized. This pipeline is not part of the 100-H-28:3, just a line that intersects the excavation.

The project would like to remove this small piece of pipe (less than 20 feet) in one piece as allowed by 40 CFR 61.145(c)(2), keeping it adequately wet during the disjoining operation and handling the section in a manner to prevent damaging or disturbing the RACM left in place. Although the asbestos is TSI, the length of piping we are dealing with is less than the amount regulated under the NESHAP (less than 260 lineal feet). Like I stated above, wet methods will be used and the pipe will be removed in a single section allowing direct load out into a double lined ERDF container. The remaining pipeline (which is not part of our remediation scope) in the layback of the excavation will be covered with soil to preclude future releases.

Let me know if you concur with our path forward or have any questions.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

# Attachment 26

**^WCH Document Control**

---

**From:** Saueressig, Daniel G  
**Sent:** Thursday, February 13, 2014 12:08 PM  
**To:** ^WCH Document Control  
**Subject:** FW: 100-D-100 Verification Sampling - map

**Attachments:** Ecology approval of 100-D-100 Verification Sampling - map.htm; D-100 12feb14.doc; Picture (Enhanced Metafile)

Please provide a chron number (and include the attachment). This email documents a regulatory approval.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326



Ecology approval of  
100-D-100 ...

---

**From:** Thompson, Wendy S  
**Sent:** Wednesday, February 12, 2014 4:21 PM  
**To:** Kapell, Arthur; Crumpler, Joe; Neath, John P; Glossbrenner, Ellwood T; Post, Thomas C  
**Cc:** Strom, Dean N; Callison, Stacey W; Martinez, Charlene R; Saueressig, Daniel G  
**Subject:** 100-D-100 Verification Sampling - map

As discussed this morning, attached is a map showing proposed sample locations for 100-D-100 using the post-excavation civil survey and a base elevation of 119 meters. I'm having a few problems with VSP getting the sample locations to actually print on the map. I think the base map from the civil survey has so much information in the file, that it's causing some problems with the output from VSP when you print.

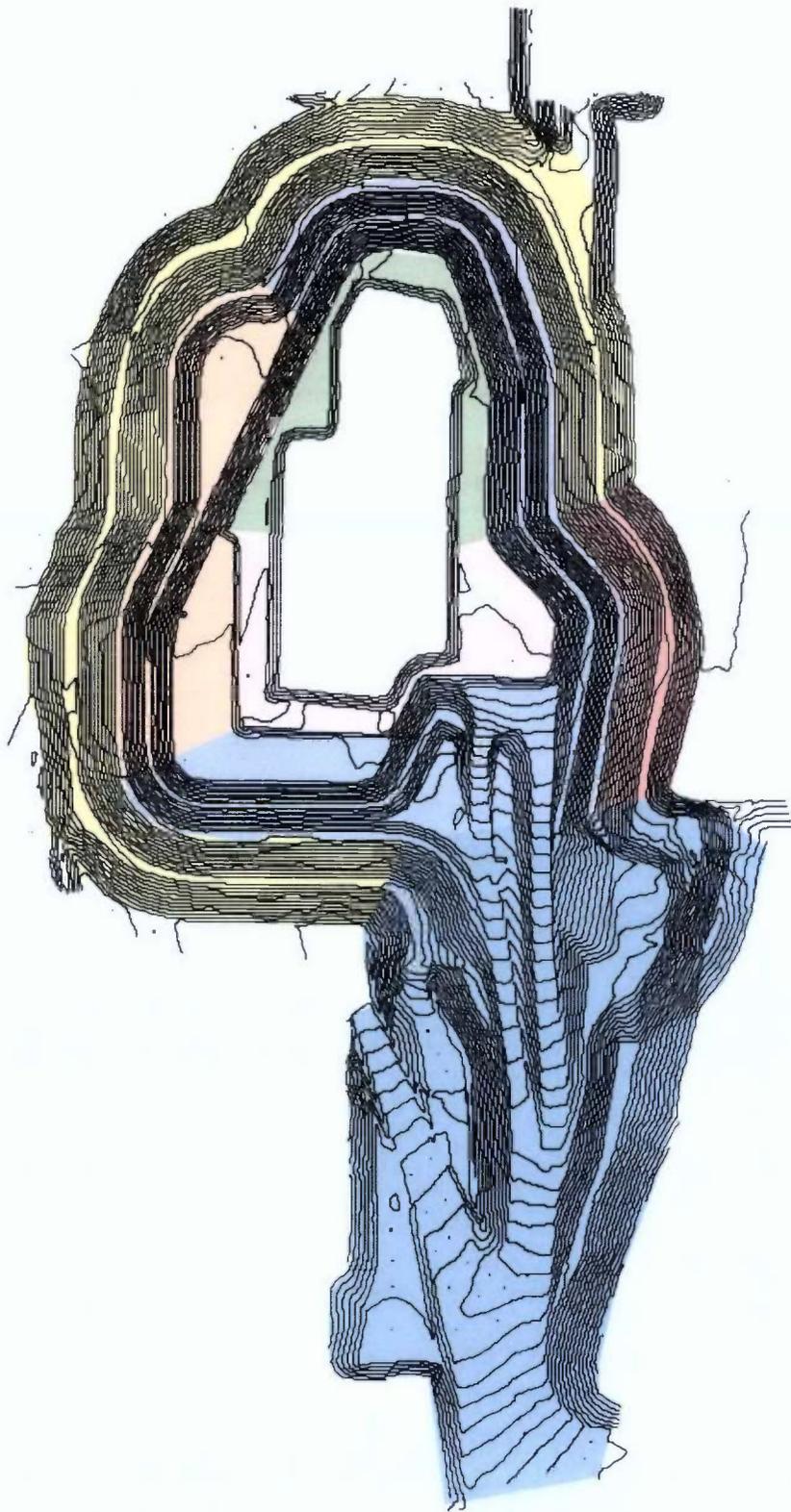
Let me know if you can't see the sample locations on the attached figures or the VSP map I pasted into this email.

Please look this over and let Stacey and me know if these sample locations are acceptable.

Thank you,  
Wendy



D-100 12feb14.doc  
(297 KB)



**From:** Kapell, Arthur (ECY) [akap461@ECY.WA.GOV]  
**Sent:** Thursday, February 13, 2014 10:06 AM  
**To:** Callison, Stacey W; Thompson, Wendy S; Crumpler, Joe; Neath, John P; Glossbrenner, Ellwood T; Post, Thomas C  
**Cc:** Strom, Dean N; Martinez, Charlene R; Saueressig, Daniel G  
**Subject:** RE: 100-D-100 Verification Sampling - map  
Stacey,

The proposed verification sampling locations for 100-D-100, provided in Wendy's email, are acceptable to Ecology.

Artie Kapell  
Washington State Department of Ecology  
Nuclear Waste Program  
(509) 372-7895  
[akap461@ecy.wa.gov](mailto:akap461@ecy.wa.gov)

---

**From:** Thompson, Wendy S [<mailto:WSTHOMPS@wch-rcc.com>]  
**Sent:** Wednesday, February 12, 2014 4:21 PM  
**To:** Kapell, Arthur (ECY); Crumpler, Dwayne (ECY); Neath, John P; Glossbrenner, Ellwood T; Post, Thomas C  
**Cc:** Strom, Dean N; Callison, Stacey W; Martinez, Charlene R; Saueressig, Daniel G  
**Subject:** 100-D-100 Verification Sampling - map

As discussed this morning, attached is a map showing proposed sample locations for 100-D-100 using the post-excavation civil survey and a base elevation of 119 meters. I'm having a few problems with VSP getting the sample locations to actually print on the map. I think the base map from the civil survey has so much information in the file, that it's causing some problems with the output from VSP when you print.

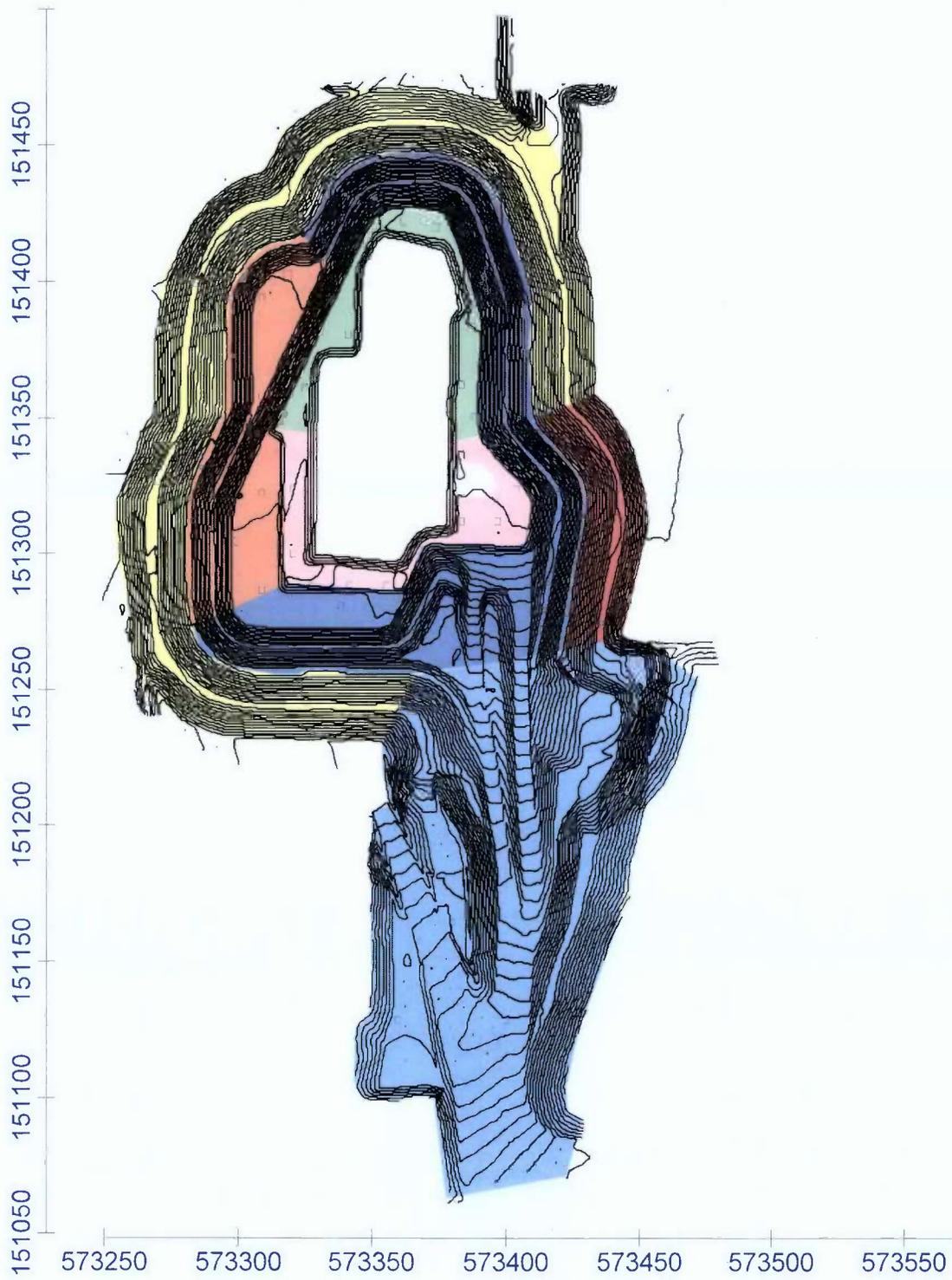
Let me know if you can't see the sample locations on the attached figures or the VSP map I pasted into this email.

Please look this over and let Stacey and me know if these sample locations are acceptable.

Thank you,  
Wendy

<< File: D-100 12feb14.doc >>

<< OLE Object: Picture (Enhanced Metafile) >>



**From:** Neath, John P [john.neath@rl.doe.gov]  
**Sent:** Thursday, February 13, 2014 1:11 PM  
**To:** Thompson, Wendy S; Kapell, Arthur; Crumpler, Joe; Glossbrenner, Ellwood T; Post, Thomas C  
**Cc:** Strom, Dean N; Callison, Stacey W; Martinez, Charlene R; Saueressig, Daniel G  
**Subject:** RE: 100-D-100 Verification Sampling - map  
Sample locations are acceptable. I would like to know why the orange area appears to have 13 (or 14) sample points rather than the 12 generated for the other areas.  
Thanks,

*John Neath*

River Corridor Closure Project  
Richland Operations Office  
U. S. Dept of Energy  
(509)372-0649

---

**From:** Thompson, Wendy S [mailto:WSTHOMPS@wch-rcc.com]  
**Sent:** Wednesday, February 12, 2014 4:21 PM  
**To:** Kapell, Arthur; Crumpler, Joe; Neath, John P; Glossbrenner, Ellwood T; Post, Thomas C  
**Cc:** Strom, Dean N; Callison, Stacey W; Martinez, Charlene R; Saueressig, Daniel G  
**Subject:** 100-D-100 Verification Sampling - map

As discussed this morning, attached is a map showing proposed sample locations for 100-D-100 using the post-excavation civil survey and a base elevation of 119 meters. I'm having a few problems with VSP getting the sample locations to actually print on the map. I think the base map from the civil survey has so much information in the file, that it's causing some problems with the output from VSP when you print.

Let me know if you can't see the sample locations on the attached figures or the VSP map I pasted into this email.

Please look this over and let Stacey and me know if these sample locations are acceptable.

Thank you,  
Wendy

<< File: D-100 12feb14.doc >>

<< OLE Object: Picture (Enhanced Metafile) >>

# Attachment 27

Activity ID	Activity Name	% Cmpl	RD	Start	Finish	F	March 2014	April 2014	May 2014	June 2014	July 2014	A
<b>600-326</b>												
<b>Excavation</b>												
IU222640	Excavation 600-326 (IU-6) *INDEFINITE HOLD	0%	3	08-Sep-15*	10-Sep-15							
<b>Loadout</b>												
IU222650	Loadout 600-326 *INDEFINITE HOLD	0%	3	14-Sep-15*	16-Sep-15							
<b>Closeout Sampling &amp; Docs</b>												
IU222710	Closure Sampling 600-326	0%	26	01-Oct-15	16-Nov-15							
<b>Final Project Closeout</b>												
IU222720	Prepare Closure Document 600-326	0%	83	17-Nov-15	19-Apr-16							
IU222730	RL/Reg Review of Draft A Closure Document 600-326	0%	26	28-Jan-16	15-Mar-16							
IU222740	RL/Reg Signature Rev 0 Closure Document 600-326	0%	4	13-Apr-16	19-Apr-16							
<b>Backfill</b>												
IU222660	Backfill 600-326	0%	1	20-Apr-16*	20-Apr-16							
<b>Revegetation</b>												
IU222680	Revegetation 600-326	0%	1	21-Nov-16*	21-Nov-16							
<b>Culture Resource Reviews</b>												
IU225110	Cultural / Eco Clearance 600-326 *INDEFINITE HOLD	5%	130	26-Jun-13 A	30-Sep-14							
<b>600-301</b>												
<b>Final Project Closeout</b>												
IU223070	Prepare Closure Document 600-301	100%	0	30-Oct-13 A	03-Feb-14 A							
<b>600-293</b>												
<b>Final Project Closeout</b>												
IU222850	Prepare Closure Document 600-293	100%	0	12-Nov-13 A	03-Feb-14 A							
<b>600-294</b>												
<b>Final Project Closeout</b>												
IU222960	Prepare Closure Document 600-294	100%	0	11-Nov-13 A	03-Feb-14 A							
<b>600-383</b>												
<b>Excavation</b>												
IU225450	Excavation 600-383 (D/H Boundary Site)	98%	1	31-Oct-13 A	10-Feb-14							
<b>Loadout</b>												
IU225350	Loadout 600-383	98%	1	31-Oct-13 A	10-Feb-14							
<b>Closeout Sampling &amp; Docs</b>												
IU225370	Closure Sampling 600-383	0%	26	11-Feb-14*	27-Mar-14							

Activity ID	Activity Name	% Cmpl	RD	Start	Finish	F											
						March 2014	April 2014	May 2014	June 2014	July 2014	Aug 2014	Sep 2014	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015
<b>Final Project Closeout</b>																	
IU225380	Prepare Closure Document 600-383	0%	93	31-Mar-14	11-Sep-14												
IU225390	RL/Reg Review of Draft A Closure Document 600-383	0%	26	04-Jun-14	21-Jul-14												
IU225400	RL/Reg Signature Rev.0 Closure Document 600-383	0%	4	19-Aug-14	25-Aug-14												
<b>Backfill</b>																	
IU225430	Backfill 600-383	0%	1	15-Sep-14	15-Sep-14												
<b>Revegetation</b>																	
IU225440	Revegetation 600-383	0%	8	10-Nov-14*	20-Nov-14												
<b>600-384</b>																	
<b>Excavation</b>																	
IU225560	Excavation 600-384 (D/H Boundary Site)	98%	1	04-Nov-13 A	10-Feb-14												
<b>Loadout</b>																	
IU225460	Loadout 600-384	98%	1	04-Nov-13 A	10-Feb-14												
<b>Closeout Sampling &amp; Docs</b>																	
IU225480	Closure Sampling 600-384	0%	26	11-Feb-14*	27-Mar-14												
<b>Final Project Closeout</b>																	
IU225490	Prepare Closure Document 600-384	0%	93	31-Mar-14	11-Sep-14												
IU225500	RL/Reg Review of Draft A Closure Document 600-384	0%	26	04-Jun-14	21-Jul-14												
IU225510	RL/Reg Signature Rev.0 Closure Document 600-384	0%	4	19-Aug-14	25-Aug-14												
<b>Backfill</b>																	
IU225540	Backfill 600-384	0%	1	15-Sep-14	15-Sep-14												
<b>Revegetation</b>																	
IU225550	Revegetation 600-384	0%	8	10-Nov-14*	20-Nov-14												
<b>600-382</b>																	
<b>Excavation</b>																	
IU225340	Excavation 600-382 (D/H Boundary Site)	98%	1	29-Oct-13 A	10-Feb-14												
<b>Loadout</b>																	
IU225240	Loadout 600-382	98%	1	29-Oct-13 A	10-Feb-14												
<b>Closeout Sampling &amp; Docs</b>																	
IU225260	Closure Sampling 600-382	0%	26	11-Feb-14*	27-Mar-14												
<b>Final Project Closeout</b>																	
IU225270	Prepare Closure Document 600-382	0%	93	31-Mar-14	11-Sep-14												
IU225280	RL/Reg Review of Draft A Closure Document 600-382	0%	26	04-Jun-14	21-Jul-14												
IU225290	RL/Reg Signature Rev.0 Closure Document 600-382	0%	4	19-Aug-14	25-Aug-14												
<b>Backfill</b>																	

Activity ID	Activity Name	% Cmpl	RD	Start	Finish	F	March 2014	April 2014	May 2014	June 2014	July 2014	A
IU225320	Backfill 600-382	0%	1	15-Sep-14	15-Sep-14	0	1	2	0	1	2	0
<b>Revegetation</b>												
IU225330	Revegetation 600-382	0%	8	10-Nov-14*	20-Nov-14							
<b>600-356</b>												
<b>Excavation</b>												
IU226500	Plume Chase 600-356 ( Segment 1 )	98%	1	05-Dec-13 A	10-Feb-14							
<b>Closeout Sampling &amp; Docs</b>												
IU226040	Closeout Sampling 600-356	0%	26	10-Feb-14*	26-Mar-14							
<b>Final Project Closeout</b>												
IU226050	Prepare Closure Document 600-356	0%	93	27-Mar-14	10-Sep-14							
IU226470	RL/Reg Review of Draft A Closure Document 600-356	0%	26	03-Jun-14	17-Jul-14							
IU226480	RL/Reg Signature Rev.0 Closure Document 600-356	0%	4	18-Aug-14	21-Aug-14							
<b>Backfill</b>												
IU226030	Backfill 600-356	0%	1	11-Sep-14	11-Sep-14							
<b>Revegetation</b>												
IU226060	Revegetation 600-356	0%	1	10-Nov-14*	10-Nov-14							
<b>600-373</b>												
<b>Final Project Closeout</b>												
IU224280	Prepare Closure Document 600-373	100%	0	29-Oct-13 A	03-Feb-14 A							
<b>600-375</b>												
<b>Final Project Closeout</b>												
IU224500	Prepare Closure Document 600-375	76%	41	02-Dec-13 A	22-Apr-14							
IU224510	RL/Reg Review of Draft A Closure Document 600-375	50%	15	21-Jan-14 A	06-Mar-14							
IU224520	RL/Reg Signature Rev.0 Closure Document 600-375	0%	4	07-Apr-14	10-Apr-14							
<b>600-376</b>												
<b>Final Project Closeout</b>												
IU224610	Prepare Closure Document 600-376	100%	0	28-Oct-13 A	03-Feb-14 A							
<b>600-374</b>												
<b>Final Project Closeout</b>												
IU224390	Prepare Closure Document 600-374	100%	0	29-Oct-13 A	03-Feb-14 A							
<b>600-377</b>												
<b>Excavation</b>												
IU224790	Excavation 600-377	98%	1	16-Dec-13 A	10-Feb-14							

Activity ID	Activity Name	% Cmpl	RD	Start	Finish	Calendar												
						F	March 2014	April 2014	May 2014	June 2014	July 2014	A						
						0	1	2	0	1	2	0	1	2	0	1	2	0
<b>Loadout</b>																		
IU224690	Loadout 600-377	98%	1	16-Dec-13 A	10-Feb-14													
<b>Closeout Sampling &amp; Docs</b>																		
IU 24710	Closure Sampling 600-377	50%	14	21-Jan-14 A	05-Mar-14													
<b>Final Project Closeout</b>																		
224720	Prepare Closure Document 600-377	0%	93	06-Mar-14	19-Aug-14													
224730	RL/Reg Review of Draft A Closure Document 600-377	0%	26	12-May-14	25-Jun-14													
224740	RL/Reg Signature Rev.0 Closure Document 600-377	0%	4	28-Jul-14	31-Jul-14													
<b>Backfill</b>																		
IU224770	Backfill 600-377	0%	1	20-Aug-14	20-Aug-14													
<b>Revegetation</b>																		
IU224780	Revegetation 600-377	0%	12	10-Nov-14*	02-Dec-14													
<b>600-379</b>																		
<b>Excavation</b>																		
IU225010	Excavation 600-379	98%	1	18-Dec-13 A	10-Feb-14													
<b>Loadout</b>																		
IU224910	Loadout 600-379	98%	1	18-Dec-13 A	10-Feb-14													
<b>Closeout Sampling &amp; Docs</b>																		
IU224930	Closure Sampling 600-379	50%	14	21-Jan-14 A	05-Mar-14													
<b>Final Project Closeout</b>																		
IU224940	Prepare Closure Document 600-379	0%	93	06-Mar-14	19-Aug-14													
IU224950	RL/Reg Review of Draft A Closure Document 600-379	0%	26	12-May-14	25-Jun-14													
IU224960	RL/Reg Signature Rev.0 Closure Document 600-379	0%	4	28-Jul-14	31-Jul-14													
<b>Backfill</b>																		
IU224990	Backfill 600-379	0%	1	20-Aug-14	20-Aug-14													
<b>Revegetation</b>																		
IU225000	Revegetation 600-379	0%	12	10-Nov-14*	02-Dec-14													
<b>600-378</b>																		
<b>Excavation</b>																		
IU224900	Excavation 600-378	98%	1	17-Dec-13 A	10-Feb-14													
<b>Loadout</b>																		
IU224800	Loadout 600-378	98%	1	17-Dec-13 A	10-Feb-14													
<b>Closeout Sampling &amp; Docs</b>																		
IU224860	Prepare Work Instruction 600-378	95%	5	16-Jan-14 A	18-Feb-14													
IU224870	RL/Reg Review of Draft A Work Instruction 600-378	100%	0	30-Jan-14 A	05-Feb-14 A													

# Attachment 28

300 Area Closure Project Status  
February 13, 2014  
100/300 Area Combined Unit Manager Meeting

**Ongoing Activities**

- 309 – Reactor shipped to ERDF, preparing to initiate below-grade demolition.
- 340 Vault: - The vault has been placed on the transport trailer, scheduled to ship the weekend of February 14<sup>th</sup>.
- 324 – Continue min-safe operations. Subcontract awarded for 300-296 retrieval, Phases I and II (retrieval design and mockup construction and testing).
- Remaining 300 Area Waste Sites – Continue to advance remedial designs and decision units. Initiated Zone 5 process sewer piping remediation.
- Continuing development of new RDR/RAWP following issuance of the 300 Area Final Action Record of Decision.
- 326 - Completing below-grade demolition, backfill pending.
- 3730 – Preparing to ship last remaining hot-cell.

**Demolition & Remediation Preparation Activities**

- 3790 – Hazardous material and asbestos removal nearing completion, demolition pending.

**60-Day Project Look Ahead**

- Complete demolition and backfill of the 326 Building.
- Complete demolition and backfill of 3790.
- Complete demolition of 3730.
- Initiate additional south of Apple waste sites remediation.
- Initiate 309 below-grade demolition.
- Finalize revision to the 300-FF-2 portion of the RDR/RAWP and SAP.

# Attachment 29

## TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 609	TPA CHANGE NOTICE FORM	Date: February 11, 2014
-------------------------------------	------------------------	----------------------------

Document Number, Title, and Revision: DOE/RL-2009-30, 300 Area Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units, Rev. 0	Date Document Last Issued: January 2009
--	--

Originator: Marty Doornbos	Phone: 376-2980
----------------------------	-----------------

**Description of Change:**  
DOE/RL-2009-30, Rev. 0, is revised to indicate that the quarterly groundwater sampling of remedial investigation wells in the 300 Area has been completed and no further groundwater sampling will be conducted under this work plan.

Briant Charboneau and Larry Gadbois agree that the proposed change **DOE-RL Environmental Protection Agency** modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.

Table ES-1, page xviii, Table 3-4, page 3-34, and Section 3.1.4.2, pages 3-55 and 3-56, of DOE/RL-2009-30, 300 Area Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units, Rev. 0 are revised to add text stating that the quarterly groundwater sampling of remedial investigation wells required under this work plan has been completed and no further groundwater sampling will be conducted under this work plan.

The revisions to Table ES-1, Table 3-4, and Section 3.1.4.2 of DOE/RL-2009-30 Rev. 0 are attached. Deleted text is identified by ~~strike through~~. Added text is identified by double underline.

**Justification and Impacts of Change:**  
Because the Record of Decision (ROD) for the 300-FF-5 OU was signed in November 2013, groundwater characterization sampling and analysis is being reduced by (1) deleting sampling at wells where data needs have been met; (2) reducing frequency of sampling at aquifer tubes; and (3) eliminating analyses for filtered metals. Sampling and analysis will continue to support monitoring for the contaminants of concern identified in the ROD. Sampling and analysis is being supplemented by adding sampling at wells to monitor impacts from waste site remediation. These changes are being implemented through the following four TPA change notices: TPA-CN-611 for DOE/RL-2002-11, 300-FF-5 Operable Unit Sampling and Analysis Plan, Rev 2; TPA-CN-612 for DOE/RL-2000-59, Sampling and Analysis Plan for Aquifer Sampling Tubes, Rev. 1; TPA-CN-609 for DOE/RL-2009-30, 300 Area Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units, Rev. 0; and TPA-CN-610 for DOE/RL-2009-45, 300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Units, Rev. 0.

The quarterly groundwater characterization data required at the remedial investigation wells in accordance with DOE/RL-2009-30 Rev. 0 were collected from December 2011 through December 2013, and the data needs were met. The data were used to develop the Conceptual Site Model, which has been incorporated into the 300 Area RI/FS report (DOE/RL-2010-99, Rev. 0). Therefore, this Work Plan is updated to indicate that the characterization is complete and no further groundwater sampling will be conducted under this work plan.

The remedial investigation wells that were sampled as part of DOE/RL-2009-30 Rev. 0 will be considered in the future for inclusion in the groundwater monitoring network needed to support implementation of the remedial action for the 300-FF-5 OU selected in the Record of Decision.

<b>Approvals:</b>		
<u>Briant Charboneau</u> BRIANT CHARBONEAU DOE Project Manager	<u>2-12-2014</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
<u>Larry Gadbois</u> EPA Project Manager	<u>2-13-2014</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
N/A Ecology Project Manager	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved

Activity ID	Activity Name	% Cmpl	RD	Start	Finish	F	March 2014	April 2014	May 2014	June 2014	July 2014	A				
IU224810	RL/Reg Signature Rev.0 WI 600-378	0%	4	10-Feb-14	13-Feb-14	0	1	2	0	1	2	3	0	1	2	0
IU224820	Closure Sampling 600-378	0%	26	26-Feb-14	10-Apr-14											
<b>Final Project Closeout</b>																
IU224830	Prepare Closure Document 600-378	0%	93	14-Apr-14	25-Sep-14											
IU224840	RL/Reg Review of Draft A Closure Document 600-378	0%	26	18-Jun-14	04-Aug-14											
IU224850	RL/Reg Signature Rev.0 Closure Document 600-378	0%	4	03-Sep-14	09-Sep-14											
<b>Backfill</b>																
IU224880	Backfill 600-378	0%	1	29-Sep-14	29-Sep-14											
<b>Revegetation</b>																
IU224890	Revegetation 600-378	0%	12	10-Nov-14*	02-Dec-14											
<b>600-279</b>																
<b>Final Project Closeout</b>																
IU223290	Prepare Closure Document 600-279	76%	48	12-Dec-13 A	05-May-14											
IU223300	RL/Reg Review of Draft A Closure Document 600-279	50%	22	03-Feb-14 A	19-Mar-14											
IU223310	RL/Reg Signature Rev.0 Closure Document 600-279	0%	4	17-Apr-14	23-Apr-14											
<b>100-K Area Exit Items</b>																
<b>Loadout</b>																
IU226400	100-K Exit Items Removal	0%	8	03-Mar-14*	13-Mar-14											
<b>IU Exit Items</b>																
<b>Loadout</b>																
IU226420	IU-2 Exit Items Removal	5%	33	22-Jan-14 A	08-Apr-14											
IU226430	IU-6 Exit Items Removal	0%	8	07-Apr-14*	17-Apr-14											
<b>600-313</b>																
<b>Revegetation</b>																
IU221300	Revegetation 600-313	0%	1	10-Feb-14*	10-Feb-14											
<b>600-380</b>																
<b>Final Project Closeout</b>																
IU225050	Prepare Closure Document 600-380	76%	9	16-Dec-13 A	25-Feb-14											
IU225060	RL/Reg Review of Draft A Closure Document 600-380	100%	0	31-Dec-13 A	05-Feb-14 A											
IU225070	RL/Reg Signature Rev.0 Closure Document 600-380	0%	4	06-Feb-14 A	13-Feb-14											

Table ES-1. Summary of Data Needs and Their Resolution

Data Gap	Data Need No.	Data Need	Resolution of Data Need	Additional Data Collection	Scope of Work	Justification
Monitoring well coverage of the hydrologic unit presumed to contain the bulk of uranium contamination is uneven, with principal weaknesses in coverage at the footprints of former liquid waste disposal sites and near the perimeter of the plume, especially the west and southwest portions.	10	Fill coverage gaps in the groundwater monitoring network for the uranium plume by completing monitoring wells at each of the 11 characterization borehole sites.	Complete each of the 11 characterization boreholes (Figure 3-5) as a groundwater monitoring well. Unless other than expected conditions are encountered during characterization, well screens will be positioned to monitor the uppermost hydrologic unit, i.e., saturated Hanford formation sediment. New wells include two in the North Process Pond; one in South Process Pond; one in 300 Area Process Trenches, five in the west and southwest portions of uranium plume, and two near the Columbia River.	Yes	<p>Field sampling: Install new monitoring wells to cover the uppermost hydrologic unit in the unconfined aquifer.</p> <ul style="list-style-type: none"> <li>• Install 11 new monitoring locations (same as for vadose zone characterization boreholes) (i.e., 2 in North Process Pond; one in South Process Pond; 1 in 300 Area Process Trenches; 5 in west and southwest portions of plume) and 2 near the Columbia River).</li> <li>• Conduct quarterly sampling of each new monitoring well for the first year, with a reduction in frequency for subsequent years if warranted. <u>The quarterly groundwater sampling of remedial investigation wells required under this work plan has been completed. No further groundwater sampling will be conducted under this work plan.</u></li> </ul> <p>Laboratory analyses:</p> <ul style="list-style-type: none"> <li>• Use initial analysis of samples to establish baseline conditions at each new monitoring well. Methods are specified in DOE/RL-2002-11, <i>300-FF-5 Operable Unit Sampling and Analysis Plan</i>, Rev. 2, or its most recent update).</li> <li>• Radiological contamination uranium (total, unfiltered sample), gross alpha, and gross beta.</li> <li>• Chemical contamination chromium, nitrate, trichloroethene, tetrachloroethene, cis-1,2-dichloroethene, and vinyl chloride.</li> <li>• Basic water chemistry, including major anions and cations.</li> <li>• Additional laboratory analyses based on site specific conditions, as warranted.</li> </ul>	The network of wells used to monitor the uranium plume needs to be sufficiently comprehensive to describe the level of contamination with an uncertainty acceptable to decision makers. Data from the expanded monitoring network will permit estimates for the level of contamination, such as, volume of plume; mass of dissolved uranium; concentrations at exposure locations, and how the level changes with time. These estimates are information needed to evaluate natural attenuation and to define the extent of the environment potentially subject to remedial action.
The extent of VOC contamination to the north and northwest of Well 399-1-16B, is not clearly defined by the current monitoring well network.	11	Additional field observations of water quality in groundwater from the lower portion of the unconfined aquifer near Well 399-1-16B, particularly upgradient from the well and within the flow path from potential sources.	Evaluate groundwater quality within horizons immediately above and equivalent to the contaminated horizon observed at Well 399-1-16B during drilling at characterization borehole locations near that well (Figure 3-5).	Yes	<p>Collect groundwater samples during drilling at characterization borehole locations No. 6, No. 9, and No. 10 as drilling proceeds. Analyses to include VOCs, uranium, major anions, including nitrate and nitrite, and cations, and field parameters (temperature, pH, turbidity, specific conductance and dissolved oxygen). Use rapid turnaround VOC analysis to help select screen interval for completing monitoring wells at the three borehole locations. See Table 3-5 for drilling sampling details.</p>	Data from additional monitoring locations will reduce the uncertainty in describing the extent of this contamination and its possible source location. Additional field observations will improve estimates for the level of contamination and changes with time, which is information for the FS analysis of remedial action alternatives.

Table 3-4. Summary of Data Needs and their Resolution

Data Gap	Data Need No.	Data Need	Resolution of Data Need	Additional Data Collection	Scope of Work	Justification
<b>300 Area Sources</b>						
Monitoring well coverage of the hydrologic unit presumed to contain the bulk of uranium contamination is uneven, with principal weaknesses in coverage at the footprints of former liquid waste disposal sites and near the perimeter of the plume, especially the west and southwest portions.	10	Fill coverage gaps in the groundwater monitoring network for the uranium plume by completing monitoring wells at each of the 11 characterization borehole sites.	Complete each of the 11 characterization boreholes (Figure 3-5) as a groundwater monitoring well. Unless other than expected conditions are encountered during characterization, well screens will be positioned to monitor the uppermost hydrologic unit, i.e., saturated Hanford formation sediment. New wells include two in the North Process Pond; one in South Process Pond; one in 300 Area Process Trenches, five in the west and southwest portions of uranium plume, and two near the Columbia River.	Yes	<p>Field sampling: Install new monitoring wells to cover the uppermost hydrologic unit in the unconfined aquifer.</p> <ul style="list-style-type: none"> <li>Install 11 new monitoring locations (same as for vadose zone characterization boreholes) (i.e., 2 in North Process Pond; 1 in South Process Pond; 1 in 300 Area Process Trenches; 5 in west and southwest portions of plume and 2 near the Columbia River).</li> <li>Conduct quarterly sampling of each new monitoring well for the first year, with a reduction in frequency for subsequent years if warranted. <u>The quarterly groundwater sampling of remedial investigation wells required under this work plan has been completed. No further groundwater sampling will be conducted under this work plan.</u></li> </ul> <p>Laboratory analyses:</p> <ul style="list-style-type: none"> <li>Use initial analysis of samples to establish baseline conditions at each new monitoring well. Methods are specified in DOE/RL-2002-11, 300-FF-5 Operable Unit Sampling and Analysis Plan, Rev. 2, or its most recent update)</li> <li>Radiological contamination uranium (total, unfiltered sample), gross alpha, and gross beta</li> <li>Chemical contamination chromium, nitrate, trichloroethene, tetrachloroethene, cis-1,2-dichloroethene, and vinyl chloride</li> <li>Basic water chemistry, including major anions and cations</li> <li>Additional laboratory analyses based on site specific conditions, as warranted.</li> </ul>	The network of wells used to monitor the uranium plume needs to be sufficiently comprehensive to describe the level of contamination with an uncertainty acceptable to decision makers. Data from the expanded monitoring network will permit estimates for the level of contamination, such as, volume of plume; mass of dissolved uranium; concentrations at exposure locations, and how the level changes with time. These estimates are information needed to evaluate natural attenuation and to define the extent of the environment potentially subject to remedial action.
The extent of VOC contamination to the north and northwest of Well 399-1-16B, is not clearly defined by the current monitoring well network.	11	Additional field observations of water quality in groundwater from the lower portion of the unconfined aquifer near Well 399-1-16B, particularly upgradient from the well and within the flow path from potential sources.	Evaluate groundwater quality within horizons immediately above and equivalent to the contaminated horizon observed at Well 399-1-16B during drilling at characterization borehole locations near that well (Figure 3-5).	Yes	<p>Collect groundwater samples during drilling at characterization borehole locations No. 6, No. 9, and No. 10 as drilling proceeds. Analyses to include VOCs, uranium, major anions, including nitrate and nitrite, and cations, and field parameters (temperature, pH, turbidity, specific conductance and dissolved oxygen). Use rapid turnaround VOC analysis to help select screen interval for completing monitoring wells at the three borehole locations. See Table 3-5 for drilling sampling details.</p>	Data from additional monitoring locations will reduce the uncertainty in describing the extent of this contamination and its possible source location. Additional field observations will improve estimates for the level of contamination and changes with time, which is information for the FS analysis of remedial action alternatives.

Table 3-4. Summary of Data Needs and their Resolution

Data Gap	Data Need No.	Data Need	Resolution of Data Need	Additional Data Collection	Scope of Work	Justification
<b>300 Area Sources</b>						
Monitoring well coverage of the hydrologic unit presumed to contain the bulk of uranium contamination is uneven, with principal weaknesses in coverage at the footprints of former liquid waste disposal sites and near the perimeter of the plume, especially the west and southwest portions.	10	Fill coverage gaps in the groundwater monitoring network for the uranium plume by completing monitoring wells at each of the 11 characterization borehole sites.	Complete each of the 11 characterization boreholes (Figure 3-5) as a groundwater monitoring well. Unless other than expected conditions are encountered during characterization, well screens will be positioned to monitor the uppermost hydrologic unit, i.e., saturated Hanford formation sediment. New wells include two in the North Process Pond; one in South Process Pond; one in 300 Area Process Trenches, five in the west and southwest portions of uranium plume, and two near the Columbia River.	Yes	<p>Field sampling: Install new monitoring wells to cover the uppermost hydrologic unit in the unconfined aquifer.</p> <ul style="list-style-type: none"> <li>Install 11 new monitoring locations (same as for vadose zone characterization boreholes) (i.e., 2 in North Process Pond; 1 in South Process Pond; 1 in 300 Area Process Trenches; 5 in west and southwest portions of plume and 2 near the Columbia River).</li> <li>Conduct quarterly sampling of each new monitoring well for the first year, with a reduction in frequency for subsequent years if warranted. <u>The quarterly groundwater sampling of remedial investigation wells required under this work plan has been completed. No further groundwater sampling will be conducted under this work plan.</u></li> </ul> <p>Laboratory analyses:</p> <ul style="list-style-type: none"> <li>Use initial analysis of samples to establish baseline conditions at each new monitoring well. Methods are specified in DOE/RL-2002-11, 300-FF-5 Operable Unit Sampling and Analysis Plan, Rev. 2, or its most recent update)</li> <li>Radiological contamination uranium (total, unfiltered sample), gross alpha, and gross beta</li> <li>Chemical contamination chromium, nitrate, trichloroethene, tetrachloroethene, cis-1,2-dichloroethene, and vinyl chloride</li> <li>Basic water chemistry, including major anions and cations</li> <li>Additional laboratory analyses based on site specific conditions, as warranted.</li> </ul>	The network of wells used to monitor the uranium plume needs to be sufficiently comprehensive to describe the level of contamination with an uncertainty acceptable to decision makers. Data from the expanded monitoring network will permit estimates for the level of contamination, such as, volume of plume; mass of dissolved uranium; concentrations at exposure locations, and how the level changes with time. These estimates are information needed to evaluate natural attenuation and to define the extent of the environment potentially subject to remedial action.
The extent of VOC contamination to the north and northwest of Well 399-1-16B, is not clearly defined by the current monitoring well network.	11	Additional field observations of water quality in groundwater from the lower portion of the unconfined aquifer near Well 399-1-16B, particularly upgradient from the well and within the flow path from potential sources.	Evaluate groundwater quality within horizons immediately above and equivalent to the contaminated horizon observed at Well 399-1-16B during drilling at characterization borehole locations near that well (Figure 3-5).	Yes	<p>Collect groundwater samples during drilling at characterization borehole locations No. 6, No. 9, and No. 10 as drilling proceeds. Analyses to include VOCs, uranium, major anions, including nitrate and nitrite, and cations, and field parameters (temperature, pH, turbidity, specific conductance and dissolved oxygen). Use rapid turnaround VOC analysis to help select screen interval for completing monitoring wells at the three borehole locations. See Table 3-5 for drilling sampling details.</p>	Data from additional monitoring locations will reduce the uncertainty in describing the extent of this contamination and its possible source location. Additional field observations will improve estimates for the level of contamination and changes with time, which is information for the FS analysis of remedial action alternatives.

intrusion is expected during high river stage conditions, specific conductance and temperature will be recorded by lowering a probe into the well before water sample collection (note: alternative field methods to observe vertical flow within a well bore are being investigated as part of the IFRC). For wells at locations where uranium concentrations rise significantly when the water table is elevated, water samples will be collected at the water table during the June sampling event.

- Field sampling:
  - o Select approximately eight well locations for tests, including subsets that represent:
    - (1) locations that show an increase in uranium concentrations when the water table is high,
    - (2) locations that show a decrease in uranium concentrations when the water table is high,
    - and (3) locations where uranium concentrations remain relatively constant (i.e., typically the perimeter areas of the plume). Perform depth-discrete sampling to provide a vertical profile of uranium concentrations at 1 m (3-ft) intervals throughout the open interval of the well.
  - o At wells near the river where river water intrusion is expected during high river stage conditions, measure specific conductance and temperature by lowering a probe into the well before water sample collection.
  - o For wells at locations where uranium concentrations rise significantly when the water table is elevated, develop and capture water samples at the water table during the June sampling event (approximately four inland well locations and four near river locations).
- Laboratory analyses: Analyze all collected water samples in accordance with the sampling and analysis plan for the 300-FF-5 OU (DOE/RL-2002-11).

Distribution data gap – uranium: Monitoring well coverage of the hydrologic unit presumed to contain the bulk of uranium contamination is uneven, with principal weaknesses in coverage at the footprints of former liquid waste disposal sites and near the perimeter of the plume, especially the west and southwest portions.

- Data Need 10: Fill coverage gaps in the groundwater-monitoring network for the uranium plume by completing monitoring wells at each of the 11 characterization borehole sites (Table 3-5 and Figure 3-5).
- Justification: The network of wells used to monitor the uranium plume needs to be sufficiently comprehensive to describe the level of contamination with an uncertainty acceptable to decision makers. Data from the expanded monitoring network will permit estimates for the level of contamination (e.g., volume of plume; mass of dissolved uranium; concentrations at exposure locations) and how the level changes with time. These estimates are information needed to evaluate natural attenuation and to define the extent of the environment potentially subject to remedial action.
- Resolution of data need: Each of the new characterization boreholes described in Table 3-5 will be completed as a groundwater-monitoring well. The screened interval as proposed in this work plan will cover the uppermost hydrologic unit in the unconfined aquifer. If unexpected conditions are discovered during the characterization phase of drilling, which will extend to the bottom of the unconfined aquifer, screen placement will be reconsidered. The new monitoring wells will be sampled quarterly for the first year to establish baseline conditions. Groundwater analyses will include radiological and chemical contamination, and basic water quality parameters, such as major anions, including nitrate and nitrite, and cations, and will be consistent with the sampling and analysis plan for the 300-FF-5 OU (DOE/RL-2002-11).

- Field sampling: Install new monitoring wells to cover the uppermost hydrologic unit in the unconfined aquifer.
  - Install 11 new monitoring locations (same as for vadose zone characterization boreholes) (i.e., 2 in the North Process Pond; 1 in the South Process Pond; one in the 300 Area Process Trenches; 5 in west and southwest portions of the plume; and 2 near the Columbia River).
  - Conduct quarterly sampling of each new monitoring well for the first year, with a reduction in frequency for subsequent years if warranted. The quarterly groundwater sampling of remedial investigation wells required under this work plan has been completed. No further groundwater sampling will be conducted under this work plan.
- Laboratory analyses: Use initial analysis of samples to establish baseline conditions at each new monitoring well. Analytical methods are described in DOE/RL-2002-11, *300-FF-5 Operable Unit Sampling and Analysis Plan*, Rev. 2, or its most recent update, and include the following (as of March 2010):
  - Radiological contaminants uranium (total, unfiltered sample), gross alpha, and gross beta
  - Chemical contaminants chromium, nitrate, trichloroethene, tetrachloroethene, cis-1,2-dichloroethene, and vinyl chloride
  - Basic water chemistry, including major anions and cations, along with field parameters temperature, pH, specific conductance, and dissolved oxygen
  - Additional laboratory analyses based on site-specific conditions, as warranted

Distribution data gap – cis-1,2-dichloroethene at Well 399-1-16B: The extent of VOC contamination to the north and northwest of Well 399-1-16B is not clearly defined by the current monitoring well network.

- Data Need 11: Additional field observations of water quality in groundwater from the lower portion of the unconfined aquifer near Well 399-1-16B, particularly upgradient from the well and within the flow path from potential source locations.
- Justification: Data from additional monitoring locations will reduce the uncertainty in describing the extent of this contamination and its possible source location. Additional field observations will improve estimates for the level of contamination and changes with time, which is information needed for the FS analysis of remedial action alternatives.
- Resolution of data need: Groundwater samples for VOCs, uranium, major anions, including nitrate and nitrite, cations, and field parameters (temperature, pH, turbidity, specific conductance and dissolved oxygen) analyses will be collected during characterization borehole drilling at locations No. 8 and No. 9 (North Process Pond), location No. 10 (300 Area Process Trenches), and location No. 6 (a near-river site east of the former sanitary leach trenches) from depths that reach a comparable hydrologic unit in the unconfined aquifer as at Well 399-1-16B (Figure 3-5). Groundwater samples will be collected for VOC analysis from various depths within the unconfined aquifer as drilling proceeds, and the oxidizing/reducing characteristics of each sample interval will be documented in the drilling logs. If significant levels of contamination are encountered during drilling in the lower portion of the unconfined aquifer, completion of the borehole as a monitoring well may include positioning the screen in the lower portion of the aquifer (i.e., a “-B” horizon well), following concurrence by the regulatory agencies.

# Attachment 30

## TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 610	TPA CHANGE NOTICE FORM	Date: February 11, 2014
Document Number, Title, and Revision: DOE/RL-2009-45, 300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Units, Rev. 0		Date Document Last Issued: January 2009
Originator: Marty Doornbos		Phone: 376-2980

**Description of Change:**

DOE/RL-2009-45, Rev. 0, is revised to indicate that the quarterly groundwater sampling of remedial investigation wells in the 300 Area has been completed and no further groundwater sampling will be conducted under this SAP.

Briant Charboneau DOE-RL and Larry Gadbois Environmental Protection Agency agree that the proposed change modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.

Section 3.5.2.1, page 3-17, of DOE/RL-2009-45, 300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Units, Rev. 0, is revised to add text stating that the quarterly groundwater sampling of remedial investigation wells required under this SAP has been completed and no further groundwater sampling will be conducted under this SAP.

The revision to Section 3.5.2.1 of DOE/RL-2009-45 Rev. 0 is attached. Deleted text is identified by ~~strikethrough~~. Added text is identified by double underline.

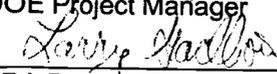
**Justification and Impacts of Change:**

Because the Record of Decision (ROD) for the 300-FF-5 OU was signed in November 2013, groundwater characterization sampling and analysis is being reduced by (1) deleting sampling at wells where data needs have been met; (2) reducing frequency of sampling at aquifer tubes; and (3) eliminating analyses for filtered metals. Sampling and analysis will continue to support monitoring for the contaminants of concern identified in the ROD. Sampling and analysis is being supplemented by adding sampling at wells to monitor impacts from waste site remediation. These changes are being implemented through the following four TPA change notices: TPA-CN-611 for DOE/RL-2002-11, *300-FF-5 Operable Unit Sampling and Analysis Plan*, Rev 2; TPA-CN-612 for DOE/RL-2000-59, *Sampling and Analysis Plan for Aquifer Sampling Tubes*, Rev. 1; TPA-CN-609 for DOE/RL-2009-30, *300 Area Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units*, Rev. 0; and TPA-CN-610 for DOE/RL-2009-45, *300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Units*, Rev. 0.

The quarterly groundwater characterization data required at the remedial investigation wells in accordance with DOE/RL-2009-45 Rev. 0 were collected from December 2011 through December 2013, and the data needs were met. The data were used to develop the Conceptual Site Model, which has been incorporated into the 300 Area RI/FS report (DOE/RL-2010-99, Rev. 0). Therefore, this SAP is updated to indicate that the characterization is complete and no further groundwater sampling will be conducted under this SAP.

The remedial investigation wells that were sampled as part of DOE/RL-2009-45 Rev. 0 will be considered in the future for inclusion in the groundwater monitoring network needed to support implementation of the remedial action for the 300-FF-5 OU selected in the Record of Decision.

**Approvals:**

 <b>BRIANT CHARBONEAU</b> DOE Project Manager	<u>2-12-14</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
 EPA Project Manager	<u>2-13-2014</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
N/A Ecology Project Manager	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved

### 3.5.1.2 Geophysical Logging

The planned boreholes and new groundwater monitoring wells will be geophysically logged with the high-resolution, spectral gamma-ray logging system to determine the vertical distribution and concentration of gamma emitting radionuclides. Soil moisture will be determined using a neutron logging tool. The groundwater monitoring wells and boreholes will be logged before the casing is telescoped and before the borehole is decommissioned. The starting point for logging will be recorded; this is usually at the ground surface or the top of the casing. Boreholes will be decommissioned with RL and EPA approval, in accordance with WAC 173-160 after geophysical logging and all sampling are completed.

### 3.5.2 Groundwater Characterization

Groundwater characterization, including well activities, identification of wells to be sampled, well depth and screen placement, and well drilling and completion procedures, is discussed in this section.

#### 3.5.2.1 New Groundwater Wells

Table 3-2 summarizes well activities. For each new well screened in the Ringold Formation Upper Mud Unit, slug testing and pump testing will be performed to characterize hydraulic conductivity. Groundwater samples will be collected from the groundwater wells (including temporary wells) installed under the scope of this SAP quarterly for the first year, with a reduction in frequency for subsequent years, if warranted, in accordance with DOE/RL-2002-11, *300-FF-5 Operable Unit Sampling and Analysis Plan*. The quarterly groundwater sampling of remedial investigation wells required under this SAP has been completed. No further groundwater sampling will be conducted under this SAP.

#### **Well Depth and Screen Placement**

For the 11 new groundwater wells in the unconfined aquifer in the 300 Area, a 4.6 m (15-ft) screen will be installed such that groundwater samples can be taken from the well during all expected groundwater elevation conditions. An exception to this will be made if VOC contamination is discovered deeper in the unconfined aquifer (i.e., at a depth horizon comparable to that observed at Well 399-1-16B). If that occurs, screen length and placement will be specified based on the contaminated horizons and sediment characteristics encountered, with the intent to be able to sample distinct contaminated horizons. Concurrence of EPA on screen placement will be gained prior to completing the well. This exception has the greatest likelihood of occurrence at locations No. 6, No. 8, and No. 9 (Figure 1-1) (wells C7656, C7653, and C7654). Screen length at a particular location may be modified to account for local hydrologic conditions. Also, screen slot size will be based on conditions encountered at the site.

For the five temporary groundwater wells, designated RIFS-a, RIFS-b, RIFS-c, RIFS-d and RIFS-e, to be completed in the unconfined aquifer in the 300 Area, a 0.6 m (2-ft) screen will be installed to cover the top of the water table at low seasonal conditions. Screen length may be modified to account for local hydrologic conditions. Also, screen slot size will be based on conditions encountered at the site.

For the three boreholes in the 600 Area subregion, each will be decommissioned with RL and EPA approval, in accordance with WAC 173-160, after sampling and geophysical logging are completed.

#### **Well Drilling and Completion Procedures**

Well drilling will be performed in accordance with WAC 173-160. The 11 new wells will be drilled using 25.4 cm (10-in.-) diameter (or larger) casing to total depth. The five temporary wells will be drilled using 20.3 cm (8-in.-) diameter (or larger) casing to total depth. The drilling method(s) will be determined based on discussions between the drilling lead and drilling contractor.

The 11 new wells will be constructed as 15.2 cm (6-in.) wells with Schedule 10, Type 304 or 316 stainless steel, V-slot continuous wire-wrap screen, atop a 1.5 m (5-ft-) long, stainless steel sump

# Attachment 31

## TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 611	TPA CHANGE NOTICE FORM	Date: February 11, 2014
Document Number, Title, and Revision: DOE/RL-2002-11, Rev 2, 300-FF-5 Operable Unit Sampling and Analysis Plan		Date Document Last Issued: January 2009
Originator: Marty Doornbos		Phone: 376-2980

**Description of Change:**  
DOE/RL-2002-11, Rev. 2, is revised to update the well list for groundwater sampling and analysis, and to revise the analytes for well sampling in the 300-FF-5 Operable Unit.

Briant Charboneau DOE-RL and Larry Gadbois Environmental Protection Agency agree that the proposed change modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.

Table 2-1, pages 2-6 through 2-9, Table 2-2, page 2-12, and Table 2-3, page 2-14 of DOE/RL-2002-11, *300-FF-5 Operable Unit Sampling and Analysis Plan, Rev. 2*, are revised to:

- delete groundwater characterization sampling and analysis at wells where data needs have been met (e.g., wells added to DOE/RL-2002-11 Rev. 1 in 2006 following the limited field investigation for uranium, and wells added to DOE/RL-2002-11 Rev. 2 in 2009 following the investigation for volatile organic compounds);
- delete a well that has been decommissioned;
- add wells for monitoring contaminants of concern identified in the ROD;
- add wells for monitoring impacts from waste site remediation; and
- delete analysis for filtered metals because the 300-FF-5 OU does not pose a risk to aquatic receptors.

The revisions to Table 2-1, Table 2-2, and Table 2-3 of DOE/RL-2002-11, Rev. 2, are attached. Deleted text is identified by ~~strike through~~. Added text is identified by double underline.

**Justification and Impacts of Change:**

Because the Record of Decision (ROD) for the 300-FF-5 OU was signed in November 2013, groundwater characterization sampling and analysis is being reduced by (1) deleting sampling at wells where data needs have been met; (2) reducing frequency of sampling at aquifer tubes; and (3) eliminating analyses for filtered metals. Sampling and analysis will continue to support monitoring for the contaminants of concern identified in the ROD. Sampling and analysis is being supplemented by adding sampling at wells to monitor impacts from waste site remediation. These changes are being implemented through the following four TPA change notices: TPA-CN-611 for DOE/RL-2002-11, *300-FF-5 Operable Unit Sampling and Analysis Plan, Rev 2*; TPA-CN-612 for DOE/RL-2000-59, *Sampling and Analysis Plan for Aquifer Sampling Tubes, Rev. 1*; TPA-CN-609 for DOE/RL-2009-30, *300 Area Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units, Rev. 0*; and TPA-CN-610 for DOE/RL-2009-45, *300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Units, Rev. 0*.

The groundwater characterization data required at the wells added for sampling and analysis to DOE/RL-2002-11 Rev. 1 and DOE/RL-2002-11 Rev. 2 were collected and the original data needs were met. The data were used to develop the Conceptual Site Model, which has been incorporated into the 300 Area RI/FS report (DOE/RL-2010-99, Rev. 0). Therefore, these wells are deleted unless they are needed to monitor uranium, a contaminant of concern (COC) in the ROD, or to monitor impacts from waste site remediation. Groundwater well 399-3-11 has been decommissioned and is deleted. The 2010 remedial investigation well 399-1-57 is added for continued monitoring of cis-1,2-dichloroethene, a COC in the ROD. The 2010 remedial investigation wells 399-1-59, 399-2-32, 399-3-33, and 399-6-3 are added for continued monitoring of uranium. Selected wells are added to monitor potential impacts from removal of the 340 Vault.

The wells deleted from sampling as part of DOE/RL-2002-11 Rev. 2 will be considered in the future for inclusion in the groundwater monitoring network to support implementation of the remedial action for the 300-FF-5 OU selected in the Record of Decision.

<b>Approvals:</b> <u>Briant Charboneau</u> DOE Project Manager Date: <u>2-12-14</u>	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
<u>Larry Gadbois</u> EPA Project Manager NA Ecology Project Manager Date: <u>2-13-2014</u>	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
Date: _____	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved

Table 2-1 Sampling Locations, Constituents, and Frequency for the 300 Area Subregion, FY2008 Update (6 pages)

Monitoring Site Name	Hydrologic Unit Monitored	COC			COPC				Supporting Measurements										
		cis-1,2-Dichloroethene	Trichloroethene	Uranium-total	Tetrachloroethene	Strontium-90	Tritium	Nitrate	Anions (C)	Alkalinity	Metals (ICP)-unfiltered and filtered	Volatile Organic Compounds	Gross Alpha/Beta	Uranium-isotopic					
<b>Near-River Well Grouping</b>																			
399-1-10A	TU	SA	SA	Q	SA				A	Q	Q	Q	Q	SA	SA	SA	SA	A	
399-1-1	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-1-16A	TU	SA	SA	Q	SA				A	Q	Q	Q	Q	SA	SA	SA	SA	SA	A
399-2-2	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-2-3 (2-2 alt)	TU																		
399-2-1	TU	SA	SA	Q	SA				A	Q	Q	Q	Q	SA	SA	SA	SA	SA	A
399-3-18	TU	SA	SA	QSA	SA				A	Q	Q	Q	Q	SA	SA	SA	SA	SA	A
399-3-1	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-3-9	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-3-10	TU	SA	SA	Q	SA				A	Q	Q	Q	Q	SA	SA	SA	SA	SA	A
399-4-9	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-4-10	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-4-7	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-1-10B	LU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-1-16B	LU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-1-16C	E	A	A	A	A					A	A	A	A	A	A	A	A	A	
399-1-57	LU	SA	SA		SA														
399-3-33	TU			SA															
<b>Central Region--Uranium Plume Transport Corridor Well Grouping</b>																			
399-1-6	TU	SA	SA	SA	SA					SA	SA	SA	SA	SA	SA	SA	SA	SA	
399-1-4 (1-6 alt)	TU																		

Table 2-1 Sampling Locations, Constituents, and Frequency for the 300 Area Subregion, FY2008 Update (6 pages)

Monitoring Site Name	Hydrologic Unit Monitored	COC				COPC				Supporting Measurements				
		cis-1,2-Dichloroethene	Trichloroethene	Uranium-total	Tetrachloroethene	Strontium-90	Tritium	Nitrate	Anions (C)	Alkalinity	Metals (ICP)-unfiltered and filtered	Volatile Organic Compounds	Gross Alpha/Beta	Uranium-isotopic
399-1-11	TU	SA	SA	SA	SA					SA	SA	SA	SA	
399-1-12	TU	SA	SA	SA	SA					SA	SA	SA	SA	
399-1-23	LU	SA	SA	Q	SA					A	Q	SA	SA	A
399-1-17A <sup>a</sup>	TU	SA	SA	Q <sup>a</sup>	SA					A	Q	Q <sup>a</sup>	SA	A
399-1-2	TU	SA	SA	SA	SA					SA	SA	SA	SA	
399-1-7	TU	SA	SA	SA	SA					SA	SA	SA	SA	
399-1-3 (1-7 alt)	TU													
399-1-21A	TU	SA	SA	Q	SA					A	Q	Q	SA	A
399-2-5	TU	Q	Q	QSA	Q					A	Q	Q	Q	A
399-2-32	TU			SA										
399-3-12 <sup>b</sup>	TU	SA	SA	SAQ	SA					Q	SAQ	SA	SA	
399-3-8 (3-12 alt)	TU													
399-3-20 <sup>b</sup>	TU	SA	SA	Q	SA					A	Q	Q	SA	A
399-3-11	LU	SA	SA	Q	SA					A	Q	Q	SA	A
399-3-38 <sup>b</sup>	TU			Q						Q				
399-3-34 <sup>b</sup>	TU			Q						Q				
399-1-17B	LU	SA	SA	SA	SA						SA	SA	SA	
399-1-8	LU	SA	SA	SA	SA						SA	SA	SA	
399-1-21B	LU	SA	SA	SA	SA						SA	SA	SA	
399-3-21	LU	Q	Q	Q	Q					A	Q	Q	Q	Q
399-3-22 <sup>b</sup>	LU	Q	Q	Q	Q					A	Q	Q	Q	Q
399-17C	E	A	A	A	A						A	A	A	A

Table 2-1 Sampling Locations, Constituents, and Frequency for the 300 Area Subregion, FY2008 Update (6 pages)

Monitoring Site Name	Hydrologic Unit Monitored	COC			COPC			Supporting Measurements						
		cis-1,2-Dichloroethene	Trichloroethene	Uranium-total	Tetrachloroethene	Strontium-90	Tritium	Nitrate	Anions (C)	Alkalinity	Metals (ICP)-unfiltered and filtered	Volatile Organic Compounds	Gross Alpha/Beta	Uranium-isotopic
399-1-9	C	A	A	A	A			A	A	A	A	A		
399-1-59	TU			SA										
399-6-3	TU			SA										
<b>Northwest Region--Upgradient Conditions Well Group</b>														
699-S20-E10	TU			SA				SA	SA	SA	SA	SA		
399-1-18A	TU			SA				SA	SA	SA	SA	SA		
399-1-15	TU	SA	SA	SA	SA			SA	SA	SA	SA	SA	SA	SA
399-1-14A (1-15 alt)	TU													
399-8-3 (8-5A alt)	TU													
399-8-5A	TU	SA	SA	SA	SA			SA	SA	SA	SA	SA	SA	SA
399-1-13A (1-12 alt)	TU													
399-8-1 (8-5A alt)	TU													
399-8-2 (8-5A alt)	TU													
399-1-18B	LU			SA				SA	SA	SA	SA	SA		
399-1-14B (1-18B alt)	LU													
399-1-13B (1-18B alt)	LU													
399-1-18C	C			A				A	A	A	A	A		
399-8-5B (1-18C alt)	C													
399-8-5C (1-18C alt)	C													
<b>Southwest Region--Upgradient Conditions Well Group</b>														
399-3-19 <sup>b</sup>	TU	SA	SA	Q	SA	Q	A	Q	Q	Q	SA	SA	SA	A
399-3-6	TU	SA	SA	SA	SA	SA		SA	SA	SA	SA	SA	SA	SA

Table 2-1 Sampling Locations, Constituents, and Frequency for the 300 Area Subregion, FY2008 Update (6 pages)

Monitoring Site Name	Hydrologic Unit Monitored	COC				COPC				Supporting Measurements				
		cis-1,2-Dichloroethene	Trichloroethene	Uranium-total	Tetrachloroethene	Strontium-90	Tritium	Nitrate	Anions (IC)	Alkalinity	Metals (ICP)-unfiltered and filtered	Volatile Organic Compounds	Gross Alpha/Beta	Uranium-isotopic
399-6-1 (5-4B alt)	TU													
399-3-2	TU	SA	SA	SA	SA		SA	SA	SA	SA	SA			
399-3-3 (3-2 alt)	TU													
399-5-4B	TU	SA	SA	SA	SA		SA	SA	SA	SA	SA			
399-6-2 (5-4B alt)	TU													
399-4-11 (3-2 alt)	TU													
399-5-1 (5-4B alt)	TU													
399-4-1	TU	SA	SA	SA	SA		SA	SA	SA	SA	SA			
399-4-12	TU	SA	SA	SA	SA		SA	SA	SA	SA	SA			
399-4-14	TU	Q	Q	QSA	Q		A	Q	Q	Q	Q			
399-4-15 <sup>b</sup>	TU						Q		Q					
699-S27-E14	TU	A	A	A	A									

**Abbreviations:** Q = quarterly; SA = semi-annually; and A = annually. IC = ion chromatography; ICP = inductively coupled plasma analysis for metals. Hydrologic Units: TU = upper portion of unconfined aquifer; LU = lower portion of unconfined aquifer; and C = uppermost confined aquifer.

**Group Methods:** Anions (IC) = To include: chloride, fluoride, nitrate, and sulfate. Metals (ICP) = To include: barium, beryllium, cadmium, chromium, copper, iron, manganese, silver, and zinc. Volatile Organic Compounds include cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride.

Monthly sampling at these wells will be conducted under *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* during April, May, October, and November to supplement the 300 Area Process Trenches RCRA schedule, thus providing a full year of monthly results (FY2008/2009 only).

**Note:** Field parameters pH, temperature, specific conductance, turbidity, dissolved oxygen, oxidation-reduction potential (redox), and depth-to-water are measured at the sampling site during each sampling event. All analyses are performed on unfiltered samples; ~~except for metals (ICP) where both filtered and unfiltered analyses are performed.~~

~~Included to monitor potential impacts from remediation of the 340 Vault. Wells to be sampled quarterly for one year during CY 2014. Analytes include phosphates, strontium-90, cesium-137 (well 399-3-12 only), and uranium. Results will be reported at Unit Manager Meetings, where decisions will be made on the need for sampling at additional wells.~~

Table 2-2 Sampling Locations, Constituents, and Frequency for the 618-11 Subregion, FY2008 Update

Monitoring Site Name	Hydrologic Unit Monitored	COPC						Supporting Measurements			
		Tritium	Gross Beta	Uranium	Technetium-99	Gross Alpha	Nitrate	Anions (IC)	Alkalinity	Metals (IC)- unfiltered and filtered	
<b>Downgradient of 618-11 Burial Ground (Near-Field)</b>											
699-13-3A	TU	Q	Q	SA	SA	Q	SA	SA	SA	SA	SA
699-13-2D	TU	Q	Q	SA	SA	Q	SA	SA	SA	SA	SA
699-12-2C	TU	Q	Q	SA	SA	Q	SA	SA	SA	SA	SA
<b>Upgradient Conditions (Near-Field)</b>											
699-12-4D	TU	A	A	A	A	A	A	A	A	A	A
<b>Downgradient of 618-11 Burial Ground (Far-Field)</b>											
699-13-1E	TU	SA	SA			SA	SA	SA	SA	SA	SA
699-13-0A	TU	SA	SA			SA	SA	SA	SA	SA	SA

**Abbreviations:** Q = quarterly; SA = semi-annually; and A = annually. IC = ion chromatography; ICP = inductively coupled plasma analysis for metals.

**Hydrologic Units:** TU = top of unconfined aquifer.

**Group Methods:** Anions (IC) = To include: chloride, fluoride, nitrate, nitrite, and sulfate. Metals (ICP) = To include: barium, beryllium, cadmium, chromium, copper, iron, manganese, silver, and zinc.

**Note:** Field parameters pH, temperature, specific conductance, turbidity, dissolved oxygen, oxidation-reduction potential (redox), and depth-to-water are measured at the sampling site during each sampling event. All analyses are performed on unfiltered samples, ~~except for metals (ICP) where both filtered and unfiltered analyses are performed~~

Table 2-3 Sampling Locations, Constituents, and Frequency for the 618-10 Subregion, FY2008 Update

Monitoring Site Name	Hydrologic Unit Monitored	COPC					Supporting Measurements					
		Uranium-total	Tributyl Phosphate	Gross Alpha	Gross Beta	Nitrate	Alkalinity	Metals (ICP)-unfiltered and filtered	Volatile Organic Compounds	Tritium	Technetium-99	Uranium-isotopic
<b>Downgradient of 618-10 Burial Ground (Near-Field)</b>												
699-S6-E4L	TU	Q	SA	Q	Q	Q	SA	SA	SA	SA	SA	A
699-S6-E4K	TU	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
<b>Downgradient of 618-10 Burial Ground; Within 316-4 Crib Footprint (Near-Field)</b>												
699-S6-E4A	TU	Q	SA	Q	Q	Q	SA	SA	SA	SA	SA	A
<b>Background: 618-10 Burial Ground/316-4 Crib</b>												
699-S6-E4D	TU	A	A	A	A	A	A	A	A	A	A	A
<b>Downgradient of 618-10 Burial Ground/316-4 Crib</b>												
699-S6-E4B	TU	SA		SA	SA	SA	SA	SA	SA	SA	SA	
699-S6-E4E	TU	SA		SA	SA	SA	SA	SA	SA	SA	SA	

**Abbreviations:** Q = quarterly; SA = semi-annually; and A = annually. IC = ion chromatography; ICP = inductively coupled plasma analysis for metals.  
**Hydrologic Units:** TU = top of unconfined aquifer.  
**Group Methods:** Anions (IC) = To include: chloride, fluoride, nitrate, nitrite, and sulfate. Metals (ICP) = To include: barium, beryllium, cadmium, chromium, copper, iron, manganese, silver, and zinc. Volatile Organic Compounds include cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride.  
**Note:** Field parameters pH, temperature, specific conductance, turbidity, dissolved oxygen, oxidation-reduction potential (redox), and depth-to-water are measured at the sampling site during each sampling event. All analysis are performed on unfiltered samples, ~~except for metals (ICP) where both filtered and unfiltered analyses are performed.~~

# Attachment 32

## TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 612	TPA CHANGE NOTICE FORM	Date: February 11, 2014
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Document Number, Title, and Revision: DOE/RL-2000-59, <i>Sampling and Analysis Plan for Aquifer Sampling Tubes</i> , Rev 1	Date Document Last Issued: February 2009
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Originator: Marty Doornbos	Phone: 376-2980
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**Description of Change:**  
DOE/RL-2000-59, Rev. 1, is revised to reduce sampling frequency and analytes for 300-FF-5 aquifer tubes.

Briant Charboneau and Larry Gadbois agree that the proposed change  
**DOE-RL** **Environmental Protection Agency**  
modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.

Table A-1, pages A-19 through A-21, of DOE/RL-2000-59, *Sampling and Analysis Plan for Aquifer Sampling Tubes*, Rev. 1, is revised to make the following changes:

- The sampling frequency for 22 aquifer tubes in the 300-FF-5 Operable Unit is modified from semiannually to annually. The annual sampling will be scheduled for December to accommodate low Columbia River stage access for collecting aquifer tube samples, and to coincide with monitoring well sampling. The March sampling provides redundant data and is deleted.
- Aquifer tube AT-3-8-D did not yield water and was removed from the ground, so it has been deleted from Table A-1.
- The analysis for filtered metals is deleted because the 300-FF-5 OU does not pose a risk to aquatic receptors.

Note: Table A-1 was intended to be the sampling schedule for FY 2009. However, the appendix has not been revised and the FY 2009 schedule remains in effect, so this change provides an updated sampling schedule. Also, the page headers in the table have an erroneous document number, which is corrected by this change to "DOE/RL-2000-59, Rev. 1".

The revisions to Table A-1, pages A-19 through A-21, of DOE/RL-2000-59 Rev. 1 are attached. Deleted text is identified by strikethrough. Added text is identified by double underline.

**Justification and Impacts of Change:**  
Because the Record of Decision (ROD) for the 300-FF-5 OU was signed in November 2013, groundwater characterization sampling and analysis is being reduced by (1) deleting sampling at wells where data needs have been met; (2) reducing frequency of sampling at aquifer tubes; and (3) eliminating analyses for filtered metals. Sampling and analysis will continue to support monitoring for the contaminants of concern identified in the ROD. Sampling and analysis is being supplemented by adding sampling at wells to monitor impacts from waste site remediation. These changes are being implemented through the following four TPA change notices: TPA-CN-611 for DOE/RL-2002-11, *300-FF-5 Operable Unit Sampling and Analysis Plan*, Rev 2; TPA-CN-612 for DOE/RL-2000-59, *Sampling and Analysis Plan for Aquifer Sampling Tubes*, Rev. 1; TPA-CN-609 for DOE/RL-2009-30, *300 Area Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units*, Rev. 0; and TPA-CN-610 for DOE/RL-2009-45, *300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Units*, Rev. 0.

The aquifer tubes will be considered in the future for inclusion in the groundwater monitoring network needed to support implementation of the remedial action for the 300-FF-5 OU selected in the Record of Decision.

<b>Approvals:</b> <u>BRIANT CHARBONEAU</u> DOE Project Manager <u>Larry Gadbois</u> EPA Project Manager  N/A Ecology Project Manager	2-12-14 Date 2-13-2014 Date  Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved
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Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90	Technetium-99	Total Uranium	VOA	TPH	TOC
C6384	M	Dec	A	1	1	1					1	1				1		1				
C6353	S	Dec	A	1	1	1					1	1				1		1				
C6356	S	Dec	A	1	1	1					1	1				1		1				
C6359	S	Dec	A	1	1	1					1	1				1		1				
C6362	S	Dec	A	1	1	1					1	1				1		1				
C6365	S	Dec	A	1	1	1					1	1				1		1				
C6368	S	Dec	A	1	1	1					1	1				1		1				
C6371	S	Dec	A	1	1	1					1	1				1		1				
C6374	S	Dec	A	1																		
C6375	M	Dec	A	1	1	1					1	1				1		1				
C6380	S	Dec	A	1	1	1					1	1				1		1				
C6380	S	Dec	A	1	1	1					1	1				1		1				
300-FF-5 Segment																						
AT-3-1-S		Oct/Dec	A	1															1			
AT-3-1-M		Oct; Mar/Dec	SAA	2	2	2					1	2						2	2	2		
AT-3-1-D(1)		Oct/Dec	A	1															1			
AT-3-2-S		Oct/Dec	A	1															1			
AT-3-2-M		Oct; Mar/Dec	SAA	2	2	2					1	2						2	2	2		
C6341	S	Oct;	SAA	2															2	2	2	

Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90 <sup>c</sup>	Technetium-99	Total Uranium	VOA	TPH	TOC	
		Mar-Dec																					
C6342	M	Get; Mar-Dec	SAA	21	21		21	2	21		1	21							21	21			
C6343	D	Get; Mar-Dec	SAA	21															21	21			
AT-3-3-S		Get; Mar-Dec	SAA	21	21		21	2	21		1	21							21	21			
AT-3-3-M		Get; Mar-Dec	SAA	21															21	21			
AT-3-3-D		Get; Mar-Dec	SAA	21															21	21			
C6344	S	Get; Mar-Dec	SAA	21	21		21	2	21		1	21							21	21			
AT-3-4-S		Get; Mar-Dec	SAA	21	21		21	2	21		1	21							21	21			
AT-3-4-M		Get; Mar-Dec	SAA	21															21	21			
AT-3-4-D		Get; Mar-Dec	SAA	21															21	21			
C6347	S	Get; Mar-Dec	SAA	21	21														21	21			
C6348	M	Get; Mar-Dec	SAA	21	21		21	2	21		1	21							21	21			
AT-3-5-S		Get; Mar-Dec	SAA	21	21		21	2	21			21							21	21			
C6350	S	Get; Mar-Dec	SAA	21															21	21			

Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90 <sup>a</sup>	Technetium-99	Total Uranium	VOA	TPH	TOC	
		MarDec																					
C6351	M	Oct MarDec	SAΔ	21	21	21	2	2	21	1	1	21	21						21	21			
AT-3-6-S		Oct MarDec	SAΔ	21	21		21	2	21			21	21						21				
AT-3-6-M		OctDec	A	1															1				
AT-3-6-D		Oct MarDec	SAΔ	21	21														21	21			
AT-3-7-S		OctDec	A	1															1				
AT-3-7-M		Oct MarDec	SAΔ	21	21		21	2	21			21	21						21				
AT-3-7-D		Oct MarDec	SAΔ	21	21														21	21			
AT-3-8-S		Oct MarDec	SAΔ	21	21		21	2	21			21	21						21				
AT-3-8-M		OctDec	A	1															1				
AT-3-8-D		Oct	A	+	+														+	+			

<sup>a</sup> Sampled by apatite project staff (DOE/RL-2005-95, April 2008 addendum). Included in this sampling and analysis plan for information.

<sup>b</sup> Horn area sampling and analysis instruction (SGW-33224) specifies frequency of quarterly for one year (last quarter will be November 2008), then review data and determine frequency. Will schedule annually for FY09 (i.e., November). Can add more if Horn area evaluation warrants.

<sup>c</sup> Sample regardless of specific conductance.

NOTES:

Choice of tube depths to sample for full suite of constituents may vary depending on field conditions. See Table A-2 for recommendations of tube depths to sample. Notes for tubes installed 2007 or 2008: Horn area tubes in accordance with SGW-33224; others in accordance with SGW-36398. "S," "M," and "D" indicate relative depths of tubes.

Frequency: A = annual; SA = semi-annual; Q = quarterly; M = monthly

# Attachment 33

## **ESH&QA Mission Completion Project**

February 13, 2014

### **Long-Term Stewardship**

- No new information to report.

### **300 Area Final Action ROD RDR/RAWP**

- The decisional draft RDR/RAWP soil addendum will be submitted to RL for review in late-February 2014.

### **Document Review Look-Ahead**

- None

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