

## Explanation of Additional Work Performed on Waste Sites Previously Reclassified to "No Action"

### Purpose

The purpose of this paper is to:

- provide an explanation of additional (unplanned) work performed on three waste sites in the Outer Area following completion of the planned remedial action, and
- document a summary of the final status of those waste sites.

### Basic Facts and Regulatory Orientation

Waste Sites	600-285-PL, Pipeline from 212-N to 216-N-1 Pond 600-286-PL, Pipeline from 212-P to 216-N-4 Pond 600-287-PL, Pipeline from 212-R to 216-N-6 Pond
Operable Unit	200-CW-3
Location	Hanford, 200 North Area
CERCLA Remedial Action Authorization	<ul style="list-style-type: none"> <li>• <i>Interim Action Record of Decision for the 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 100-KR-1, 100-KR-2, 100-IU-2, 100-IU-6, and 200-CW-3 Operable Units, EPA 1999 (Remaining Sites ROD)</i> <a href="http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0024/D199153689/D199153689_20266_84.pdf">http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0024/D199153689/D199153689_20266_84.pdf</a></li> <li>• <i>Explanation of Significant Differences for the 100 Area Remaining Sites Interim Remedial Action Record of Decision, August 2009 (ESD)</i> <a href="http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0052/0908240150/[0908240150].PDF">http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0052/0908240150/[0908240150].PDF</a> <a href="http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0052/0908060927/[0908060927].PDF">http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0052/0908060927/[0908060927].PDF</a></li> <li>• <i>DOE/RL-2007-55, 2008, Remedial Design/Remedial Action Work Plan for 200 North Area Waste Sites Located in the 200-CW-3 Operable Unit, October 2008 (RD/RAWP)</i> <a href="http://www5.hanford.gov/arpir/?content=findpage&amp;Akey=0810230107">http://www5.hanford.gov/arpir/?content=findpage&amp;Akey=0810230107</a></li> <li>• <i>DOE/RL-2007-54, 2008, Sampling and Analysis Plan for Remediation of 200 North Area Waste Sites Located in the 200-CW-3 Operable Unit, July 2008 (SAP)</i> <a href="http://www5.hanford.gov/arpir/?content=findpage&amp;Akey=0810230106">http://www5.hanford.gov/arpir/?content=findpage&amp;Akey=0810230106</a></li> </ul>
Reclassification Forms	2009-22 (600-285-PL) 2009-23 (600-286-PL) 2009-24 (600-287-PL)
RSVP	DOE/RL-2009-84 (October 2009)

### Summary and Timeline of Activities

- June 2009 Pipeline sites sampled in accordance with the RD/RAWP and SAP completed. Sample (HEIS) ID numbers: B20LK1, B20LK2, B20LK3, B20LK4, B20LK5, B20LK6.
- August 2009 Analytical data evaluated against RALs. Determination made that RTD was not applicable (decision process described in section 1.2 of the RD/RAWP, second paragraph) and that site meets "No Action" criteria. Reclassification Forms and RSVP in review.
- September 2009 Reclassification Forms approved by RL. This formally changed the status of the pipeline sites to "No Action".
- October 2009 Reclassification Forms approved by Lead Regulatory Agency (EPA)
- November 2009 Other work activities occurring in the vicinity of the pipeline waste sites –
- Demolition of the 212-N, -P and -R Facilities was completed (these facilities were located at the northern most end of the pipeline and were the source of the cooling water that passed through each pipeline).
  - Remedial action began on the pond sites (216-N-1, -4 and -6) which lie at the south end of the pipelines and received the cooling water transferred by the pipelines.
- July 2010 During the remedial action on the pond sites (216-N-6 specifically) radiologically contaminated sediment was discovered just inside the outfall end of the 600-287-PL pipe.
- Oct-Dec 2010 Pipelines were excavated in accordance with the radiological indications:
- 600-285-PL Pipeline left in place; radiological postings removed. (Sampling summary provided in Table 1)
  - 600-286-PL Pipeline excavated (removed) entirely.
  - 600-287-PL Pipeline excavated (removed) entirely.

Sampling was performed of 600-285-PL and of the soils in the area of the excavated pipelines (600-286-PL and 600-287-PL). Analytical data received, compared to 200-CW-3 RAGs, and determined to meet Remedial Action Goals of the 200-CW-3 Remedial action (see data summary in Table 2).

Sample (HEIS) ID numbers: B295B0, B29B37, B29B38, B29B39, B29B40, B29B41, B29B42, B29B43, B29B44, B29B45, B29B52, B29B53, B29B54, B29B55, B29B56, B29B57, B29B58, B29B59, B29B60, B2B4T1, B2B4V6, B2B4P6, B2B4T2, B2B4V7, B2B4P7, B2B4T3, B2B4V8, B2B4P8, B2B4T4, B2B4V9, B2B4P9, B2B4T5, B2B4W0, B2B4R0, B2B4T7, B2B4W2, B2B4R2, B2B4T8, B2B4W3, B2B4R3, B2B4T9, B2B4W4, B2B4R4, B2B4T6, B2B4W1, B2B4R1.

**Final Status and Conclusions Drawn from Field Conditions**

Based on the as-found conditions and the sample data, the most likely source of the radiologically contaminated sediment found in the pipelines occurred was the 200 North Facilities demolition activities. The contaminants were contained in a moist sediment inside the pipeline, was not found on other internal surfaces of the pipeline, was not embedded in the vitreous clay material of the pipelines nor the soils outside the pipeline.

The contamination found in pipelines 600-286-PL and 600-287-PL was not found in the 600-285-PL. Pipelines 600-286-PL and 600-287-PL were excavated (removed) entirely for the full length of the pipeline, followed by verification sampling. At pipeline 600-285-PL, no contaminants above the 200-CW-3 RAGs were found through analytical sampling and the pipeline met radiological down posting criteria, therefore the pipeline was left in place and the radiological postings were removed. Table 1 provides a sampling summary for 600-285-PL. Table 2 provides a sampling summary for 600-286-PL and 600-287-PL.

The current field conditions of these waste sites, the analytical data, and the radiological conditions meet the action levels and objectives established in the 200-CW-3 remedial action documents. The waste site status of "No Action" remains applicable and thus will not be revisited.

Notations summarizing these activities and final field conditions for each site will be entered into the WIDS data base.

**Table 1. Sampling Summary for 600-285-PL**

The table below provides a summary of analytical results from samples collected at the 600-285-PL. The pipeline was surveyed using radiological instruments, with gross beta counts detected slightly above background. Further analysis with the SAM-940, determined the contribution of the gross beta counts to be from Potassium-40 (K-40), which is a naturally occurring isotope. The gross beta counts from the field instrument were similar to the samples obtained in June of 2009, in which analytical data confirmed the presence of K-40.

The pipelines were further investigated and pipe material (vitreous clay) was analyzed for radiological indicators. Additionally, a radiological (rad) screen was conducted by the lab to confirm the gross beta counts identified by the field instrument. The rad screen for gross beta resulted in a concentration of 7.7 pCi/g, which is significantly lower than previous samples that were collected in June of 2009 in which no COPC's were identified above the RAGs. As a result, the gross beta counts detected above background are associated with the presence of the naturally occurring isotope K-40.

The indicator analytes chosen were the three constituents of concern identified in the downstream pond. Because the indicator analytes met RAGs and radiological conditions met down posting criteria, no further action was taken on this pipeline.

Table 1. Summary of Analytical Results for 600-285-PL and Comparison Against RAGs

Radionuclide COPCs	Remedial Action Goal for 200-CW-3 (Shallow Zone) (pCi/g)	Results for 600-285-PL (pCi/g)	Required Detection Limit <sup>a</sup> (pCi/g)	Laboratory Minimum Detection Limit (pCi/g)	Results Below RAGs?
Cesium-137	6.2	U	0.05	0.031	YES
Europium-152	3.3	U	0.1	0.092	YES
Strontium-90	4.5	U	1	0.33	YES

<sup>a</sup> Detection limits are taken from DOE/RL-2007-54 unless otherwise noted.

U = Result below laboratory minimum detection limit (MDL)

**Table 2. Sampling Summary for 600-286-PL and 600-287-PL**

The table below provides a summary of analytical results from samples collected at the 600-286-PL and 600-287-PL. At these sites, radiological contamination was found in the pipeline at the outfall. The pipelines were completely removed and verification sampling of the remaining soils was performed. The table below provides the highest data value found through analytical sampling on a per-constituent basis. As demonstrated below, the constituent concentrations in the remaining soils met RAGs.

Table 2. Summary of Analytical Results for 600-286-PL and 600-287-PL  
Soils and Comparison Against RAGs

Radionuclide COPCs	Remedial Action Goal for 200-CW-3 (Shallow Zone) (pCi/g)	Results for 600-286-PL <sup>a</sup> (pCi/g)	Results for 600-287-PL <sup>a</sup> (pCi/g)	Required Detection Limit <sup>b</sup> (pCi/g)	Laboratory Minimum Detection Limit (pCi/g)	Results Below RAGs?
Americium-241	31.1	U	U	1	0.652	YES
Cesium-137	6.2	0.78	U	0.05	0.039	YES
Cobalt-60	1.4	0.35	U	0.05	0.05	YES
Europium-152	3.3	U	U	0.1	0.101	YES
Europium-154	3	U	U	0.1	0.132	YES
Europium-155	125	U	U	0.1	0.12	YES
Nickel-63	4,026	U	U	30	3.38	YES
Plutonium-238	37.4	U	U	1	0.39	YES
Plutonium-239/240	33.9	0.029	U	1	0.311	YES
Strontium-90	4.5	U	U	1	0.47	YES
Technetium-99	15	1.4	U	1	0.518	YES
Thorium-232	1.3	0.397	1.03	1	0.354	YES
Tritium (H-3)	35.5	U	U	30	8.21	YES
Uranium-233/234	1.1	0.22	0.779	1	0.175	YES
Uranium-235	1.0	0.19	U	1	0.198	YES
Uranium-238	1.1	0.23	0.817	1	0.163	YES
Non- Radionuclide COPCs	Remedial Action Goal for 200-CW-3 (Shallow Zone) (mg/kg)	Results for 600-286-PL <sup>a</sup> (mg/kg)	Results for 600-287-PL <sup>a</sup> (mg/kg)	Required Detection Limit <sup>b</sup> (mg/kg)	Laboratory Minimum Detection Limit (mg/kg)	Results Below RAGs?
Antimony	6	U	0.24	0.6	0.33	YES
Arsenic	6.5	3.99	6.4	0.5	0.44	YES
Barium	5,600	98.8	67.6	0.2	0.22	YES
Cadmium	80	U	0.092	0.1	0.1	YES
Chromium Total	80,000	10.9	8.8	1	0.54	YES
Chromium VI	2.2	0.139	U	0.5	0.15	YES
Lead	353	6.15	5.2	0.5	0.11	YES
Manganese	11,200	454	447	0.5	0.11	YES

Mercury	24	U	0.024	0.05	0.055	YES <sup>d</sup>
Zinc	24,000	54.7	46.4	1.0	1.6	YES
PCB	0.5	0.026 <sup>c</sup>	U	0.5	0.009	YES

a Greatest value of samples and duplicate listed.

b Detection limits are taken from DOE/RL-2007-54 unless otherwise noted.

c Value is sum of values greater than detection limit for Aroclor.

d Value is below laboratory minimum detection limit. Laboratory minimum detection limit is above detection limit required by DOE/RL-2007-54. Both detection limits and thus the final data result are significantly below RAG value.

U = Result below laboratory minimum detection limit (MDL)

## Chandran, Nitya

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**From:** Walker, Curtis B  
**Sent:** Tuesday, January 04, 2011 11:14 AM  
**To:** Chandran, Nitya  
**Cc:** Moder, Daniel L  
**Subject:** FW: NOTIFICATION OF ADDITIONAL ACTION TAKEN ON 200 NORTH PIPELINE WASTE SITES PREVIOUSLY RECLASSIFIED TO "NO ACTION"  
**Attachments:** Explanation of Additional Actions for 285, 286 & 287 Pipelines.docx

Nitya,

Can you do follow up on this?

Thanks!

**Approved for Public Release;  
Further Dissemination Unlimited**

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**From:** Roddy, Francis [<mailto:Francis.Roddy@rl.doe.gov>]  
**Sent:** Tuesday, January 04, 2011 11:12 AM  
**To:** Walker, Curtis B  
**Cc:** Farabee, Oliver A; Louie, Catherine  
**Subject:** FW: NOTIFICATION OF ADDITIONAL ACTION TAKEN ON 200 NORTH PIPELINE WASTE SITES PREVIOUSLY RECLASSIFIED TO "NO ACTION"

Please put this documentation in the Admin Record. Thanks.

Frank Roddy

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**From:** Walker, Curtis B [[mailto:Curtis\\_B\\_Walker@RL.gov](mailto:Curtis_B_Walker@RL.gov)]  
**Sent:** Friday, December 31, 2010 4:03 PM  
**To:** Farabee, Oliver  
**Cc:** Louie, Catherine; Roddy, Francis; Sinton, Gregory; Chapin, Douglas; Foss, Dyan L; Wier, Bo; Moder, Daniel L; Whitley, Kelly M  
**Subject:** NOTIFICATION OF ADDITIONAL ACTION TAKEN ON 200 NORTH PIPELINE WASTE SITES PREVIOUSLY RECLASSIFIED TO "NO ACTION"

Al,

Per our discussions, this email is to notify RL that additional field work was performed on waste sites in the 200-CW-3 operable unit that were reclassified to "No Action" status in 2009. The attached text provides a summary of the actions taken, the reason those actions were taken and the end state of the waste sites.

In short, three pipeline waste sites in the 200-CW-3 Operable Unit, 600-285-PL, 600-286-PL and 600-287-PL were remediated under an interim remedial action in 2009. At the conclusion of that remedial action, the waste sites were reclassified to "No Action" in accordance with Reference 1. The completion of the remedial action was summarized in the Remaining Sites Verification Package, DOE/RL-2009-84 (Ref. 2). In 2010, contamination was found in two of the three pipelines and sampling was performed to determine the specific conditions. In accordance with the conditions found, two of the waste sites, 600-286-PL and 600-287-PL were removed entirely.

Because the waste sites meet the remedial action goals summarized in DOE/RL-2009-84, the reclassification to "No Action" remains valid for the current conditions and thus will not be revisited. Further details are provided in the attached summary. WIDS will be updated to reflect these actions to provide the necessary documentation for the CERCLA final decision process for these sites, and as a result, CHPRC requests your assistance in submitting this email and attachment into the Administrative Record.

- References:
1. DOE-RL 2007, *Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Handbook, RL-TPA-90-0001, Guideline Number TPA-MP-14, "Maintenance of the Waste Information Data System (WIDS)"*
  2. DOE/RL-2009-84, *Remaining Sites Verification Package for the 600-285-PL, 600-286-PL and 600-287-PL Waste Sites in the 200-CW-3 Operable Unit, Rev. 0, September 2009*

If you have any questions or if I can be of any assistance, please let me know.

Curt Walker



**CH2MHILL**  
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