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DOE/RL-2016-74
Revision 0

207A South Retention Basin Closure Report

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

U.S. DEPARTMENT OF ENERGY | Richland Operations Office

P.O. Box 550
Richland, Washington 99352

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DOE/RL-2016-74
Revision 0

207A South Retention Basin Closure Report

B. J. Dixon
CH2M HILL Plateau Remediation Company

Date Published
January 2017

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

U.S. DEPARTMENT OF ENERGY | Richland Operations Office
P.O. Box 550
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APPROVED
By Lana Perry at 12:44 pm, Jan 17, 2017

Release Approval | Date

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Terms

DQA	data quality assessment
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
IQRPE	Independent Qualified Registered Professional Engineer
MTCA	WAC 173-340, “Model Toxics Control Act—Cleanup”
OWTF	onsite waste tracking form
VSP	Visual Sample Plan
SRB	South Retention Basin
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*

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1 Introduction and Background

The 207A South Retention Basin (hereinafter referred to as the 207A SRB) was a surface impoundment that was used for storage of 242A Evaporator process condensate from 1977 through 1989. This closure report provides information and documentation related to the closure of the 207A SRB treatment, storage, and disposal unit under the *Resource Conservation Recovery Act of 1976* (RCRA) as implemented under WAC 173-303, "Dangerous Waste Regulations."

Table 1 provides a summary of key activities related to closure.

Table 1. Key Activities Related to Closure of the 207A South Retention Basin

Date	Description
June 25, 2015	Permit modification request, closure plan, temporary authorization request, and SEPA (RCW 43.21C, "State Environmental Policy") checklist were submitted to Ecology via letter 15-AMRP-0228.
June 30, 2015 - August 28, 2015	60-day public comment period and August 5 public meeting were held.
July 24, 2015	Temporary authorization to initiate closure activities was received from Ecology via letter 15-NWP-141.
September 21, 2015	Action memorandum (DOE/RL-2015-51) was signed for time-critical removal action to authorize disposal of 207A SRB waste in ERDF.
September 2015	An Independent Qualified Registered Professional Engineer was hired to certify closure in accordance with the closure plan.
September 28, 2015	Field work on basin demolition was initiated.
November 12, 2015	Samples of soil underlying the basin and at the location of the stockpile area were collected in accordance with the sampling and analysis plan.
December 2015	Sample results were received.
January 21, 2016	Temporary authorization to continue with closure activities was extended for 180 days to July 22, 2016.
February 2, 2016	Data quality assessment was drafted.
April 21, 2016	Data validation report was issued.
May 5, 2016	Proposed permit modification conditions, closure plan, determination of nonsignificance, fact sheet, Part A, and response to public comments were received via Ecology letter 16-NWP-078.
May 9, 2016 – June 24, 2016	45-day public comment period on draft permit conditions and closure plan was held.
October 6, 2016	Decision on permit modification request was issued by Ecology letter 16-NWP-163.
November 5, 2016	Permit modification went into effect (permit conditions and approved closure plan).

Table 1. Key Activities Related to Closure of the 207A South Retention Basin

Date	Description
December 3, 2016	207A SRB site was backfilled and returned to the appearance and use of surrounding land areas.

Note: See Chapter 5 for complete reference citations.

Ecology = Washington State Department of Ecology

ERDF = Environmental Restoration Disposal Facility

SEPA = State Environmental Policy Act (RCW 43.21C, "State Environmental Policy")

Additional activities that will occur after completion of this closure report include the certification of closure, submittal of documentation to the Operating Record and Administrative Record, and submittal of a class 1 prime permit modification request to remove the 207A SRB from the Hanford RCRA Permit (WA7890008967, *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*).

2 Documentation and Photographs Related to Closure Activities

The following major activities are described in this chapter:

1. Preparatory actions such as utility isolations and obtaining documentation to authorize the work
2. Physical removal of the basin structure
3. Collection and disposal of wastes
4. Sample collection and analysis
5. Backfill and site restoration

2.1 Preparatory Actions

Initial steps for demolition of the basin structure focused on developing the work package, obtaining the excavation permit, completing the survey to establish sampling points, completing waste profiles, and coordinating with other organizations who would be impacted by the work. The following documentation was obtained:

- DOE/RL-2015-51, *Action Memorandum for the Time-Critical Removal Action for 207-A South Retention Basin Closure Disposal at the Environmental Restoration Disposal Facility*
- Temporary authorization to allow initiation of closure activities prior to approval of the permit modification request
- Excavation permit (DAN15-0141)
- Work package (D4-15-03465/M) (Appendix A)
- CHPRC-1502655, "Interoffice Memorandum, Cultural and Ecological Review for the Demolition and Removal of the 207-A South Retention Basin" (Appendix B)
- Asbestos 40 CFR 61, "National Emission Standards for Hazardous Air Pollutants" (NESHAP), Notice of Intent for demolition of the 207A SRB

- Global positioning system survey of the 207A SRB (Appendix C)
- Waste profile for disposal of the waste at the Environmental Restoration Disposal Facility (ERDF) (WP207AD4002)

Other work included establishing a queue for roll-on/roll-off waste containers (ERDF cans), setting up a 90-day accumulation area, and performing radiological surveys of empty ERDF cans.

2.2 Removal of Basin Structure

Field work began on September 28, 2016, by isolating piping to the 207A SRB at the pump pit located between the 207A SRB and the 207A North Retention Basin. The piping, which was used to transfer the stored effluent to the 216-A-37-1 Crib for disposal to the soil column, was removed at the south wall of pump pit, and holes left by removal were filled (Figure 1). Excavation of the basin began with removal of the sidewalks and the west basin cell. Excavation followed the cell configuration to ensure that the sides of excavation were sloped to prevent cave-ins (Figure 2).

Figure 1. Pump Pit between the 207A SRB and the 207A North Retention Basin

Figure 2. Removal of Basin Structure for the West Cell of the 207A SRB

The excavated basin structure was placed in ERDF cans and either sent to ERDF or staged in a 90-day waste accumulation area (Figure 3). Soil-Sement® was used as a fixative to prevent windblown dust and contamination spread. Water was also used to minimize dust and decontaminate equipment (Figure 4); however, the amount of water was minimized to avoid ponding or contaminant transport.

A debris loadout area was established to facilitate loading of ERDF cans on the west side of the excavation (Figure 5). Figure 6 shows the site after removal of the structure was completed. After removal of the basin structure, a radiological survey was performed and a barrier and signs placed around the excavation to warn unauthorized persons not to enter. The basin structure consisted of the original Hypalon® liner[1] overlain by concrete. The Hypalon liner was in good condition with no deterioration noted.

® Soil-Sement is a registered trademark of Midwest Industrial Supply, Inc., Canton, Ohio.

® Hypalon is a registered trademark of E.I. Du Pont de Nemours and Company, Wilmington, Delaware.

[1] Hypalon is a reinforced flexible geomembrane with excellent durability against ultraviolet and ozone exposure and resistance to a wide variety of organic and inorganic chemicals. Its properties make it a lining choice in potable water

Figure 3. ERDF Can Queue and 90-day Accumulation Area

Figure 4. Water Used for Dust Suppression and Decontamination during Demolition of the 207A SRB

Figure 5. Debris Loadout Area

Figure 6. 207A SRB Excavation Footprint after Removal of Basin Structure

2.3 Collection and Disposal of Waste

The 242A Evaporator process condensate was designated as mixed waste because it was derived from a radioactive waste containing spent halogenated and nonhalogenated solvents. Demolition waste was managed as dangerous waste because the basin stored listed waste. Waste generated during the removal of the basin structure was placed in ERDF cans. To facilitate loading, a stockpile of rubble from the structure was created to the west of the basin (see Figure 5). As noted above, Soil-Sement and water were used to minimize dust during loading and to prevent blowing dust from the stockpile. Following filling, covers were placed on the ERDF cans to keep them closed during accumulation and transportation. Full ERDF cans that could not be transported directly to ERDF were taken to the 90-day accumulation area at the 275EA Warehouse. Seventy shipments of waste were transported to ERDF between October 6 and October 19, 2015. The total amount of waste generated was approximately 1,185 tons. Appendix D provides onsite waste tracking form (OWTF) information that documents removal and final disposition of

and industrial wastewater applications. Since 1992 it has been further protected at the 207A SRB by installation of concrete walls and floors over the liner.

bulk containers of dangerous wastes and waste residues, including contaminated media, debris, and any treated residuals at ERDF. An additional 135 kg of debris, soil, and personal protective equipment from final survey and sampling following demolition was shipped to ERDF in a nonbulk container (208 L [55 gal] drum) under the same waste profile (OWTF 200E-16-0083).

2.4 Sampling and Analysis

On November 12, 2015, samples of soil underlying the basin and at the location of the stockpile area were collected in accordance with the sampling and analysis plan. Twenty samples were collected using a grid system for completing the WAC 173-340, “Model Toxics Control Act—Cleanup” (MTCA), three-part test for determining if the site meets clean closure requirements. An additional 12 focus samples were collected (3 along the wall/floor joints in each of the 3 basin cells and 3 where the debris loading stockpile was established). Duplicate samples were collected at sampling points 207-A-6 and 207-A-15. In addition to the grid and focus samples, a field transfer blank and two full trip blank samples were collected. The sample locations were flagged using the coordinates provided in the survey data report for the 207A SRB (Appendix C). Sample collection is documented in the logbook and data forms provided in Appendix E. The documentation indicates that the requirements of the sampling and analysis plan of the closure plan were followed, which include the following: location and depth of sampling, screening out of larger particulates, following established sampling procedures, preserving the samples, labeling of sample containers, and maintaining chain of custody. Decontamination of sampling equipment was not necessary because the equipment was not reused. Staff from the Washington State Department of Ecology (Ecology) were present to witness sampling and obtained a split sample from sample point 207-A-10. A small amount of sampling waste was generated that was placed in a 208 L (55 gal) drum, managed under satellite accumulation area standards, and subsequently disposed at ERDF when sampling activities were finished.

The samples were sent to GEL Laboratories for semivolatile analysis for o-cresol and m,p-cresols and for volatile analysis for acetone and methylene chloride. Duplicates were sent to Test America. Since the Hypalon® liner was not degraded, no analysis for carbon tetrachloride or chloroform was performed. Analytical results were received in December 2015. A summary of the results is provided in Appendix F, and the laboratory reports are provided in Appendices G through I. The following documents were produced to ensure that the analytical data were usable for determining if clean closure performance standards had been met:

1. Data Analysis Report (see Appendix J). This report is described in Section 4.6.2.6. of the approved closure plan and is required to be submitted to Ecology within 30 days of the effective date of the permit modification. The report is created by reentering the analytical data into the Visual Sample Plan (VSP) software to determine if the user input parameters were estimated appropriately. This verification is not required for a particular analyte if all the analytical data for that analyte are nondetect (such as was the case for almost all data for the 207A SRB). Nevertheless, the report was completed and confirms that the assumptions were valid and supports rejection of the null hypothesis, thus confirming that the site is clean.

2. Data Validation Report (see Appendix K). Section 4.6.2.5. of the approved closure plan requires that at least 5% of the sample results must be validated by a third party. The data validation report was completed by Analytical Quality Associates for all 38 samples (grid, focus, duplicates, and QC). The report addresses holding times, sample preservation, laboratory blanks, trip blanks, field blanks, accuracy, precision, internal standards, detection limits, and completion. The report concludes that all data are usable.

3. Data Quality Assessment (see Appendix L). The data quality assessment (DQA) is mentioned in Section 4.6.2.3. of the approved closure plan. The purpose of the DQA is to determine whether the data are the right type and of sufficient quantity and quality to support closure decisions.

Once the permit modification became effective[2] and the analytical data were found to be acceptable, the sample results were compared to the closure performance standards found in Table 5 of the approved closure plan. The most restrictive value in Table 5 was used to apply the three-part test described in Section 4.6.2 of the closure plan. The true mean for each target analyte was taken from the VSP data analysis report. For purposes of applying the statistical tests for clean closure, the laboratory minimum detection limit was used for the undetected results, and the estimated value was used for the "J" flagged results. Table 2 provides a summary of the data.

Table 2. Data Summary

Target Analyte	Maximum Result (µg/kg)	95% Upper Confidence Limit Mean (µg/kg)	Cleanup Level (µg/kg)*
Acetone	4.04	3.43	2.89E+04
Methylene chloride	6.73	3.03	21.5
m-cresol	113	109	4.00E+06
o-cresol	113	109	2.33E+03
p-cresol	113	109	8.00E+06

* The closure performance standard in Table 5 of the approved closure plan are provided in units of mg/kg. For easier comparison to the sample results, the cleanup levels were converted to µg/kg.

The results of applying the MTCA three-part test are as follows:

- Test 1: The upper one-sided 95% confidence limit on the true mean soil concentration shall be less than the MTCA Method B soil cleanup level.

  Result: The 95% confidence limit mean for each target analyte is at least one order of magnitude less than the most restrictive cleanup level.

- Test 2: No sample concentration can be more than twice the cleanup level.

  Result: All results were below the cleanup level.

- Test 3: Less than 10% of the samples can exceed the cleanup level.

  Result: All results were below the cleanup level.

[2] Letter 16-NWP-163 from Ecology dated October 6, 2016, issuing the permit modification that would become effective in 30 days unless appealed. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=1610120413

Therefore, the site passes the three-part test and the null hypothesis is rejected (i.e., the site can be clean closed). It should be noted that the results from the focus samples are not evaluated under the three-part test. Each sample result was compared directly to the cleanup level. All results were nondetects.

2.5 Backfill and Site Restoration

Once sampling results confirmed that contaminated soils had been removed and the underlying soil met the cleanup criteria, the 207-A SRB excavation footprint was backfilled and returned to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity. Figures 7 and 8 show the site during backfilling activities and after it was returned to the appearance of the surrounding area, respectively.

Figure 7. Backfill Being Placed in the Excavation Footprint from 207A SRB Structure Removal

Figure 8. 207A SRB Site after Completion of Activities to Return the Site to the Appearance of the Surrounding Area

3 Deviations

There were no deviations from the approved closure plan.

4 Independent Qualified Registered Professional Engineer

An Independent Qualified Registered Professional Engineer (IQRPE) observed field activities throughout the demolition, waste management, sampling, and backfill processes. His observations included visual inspection of the storage cells, review of contaminated basin structure removal, review of sampling procedures and results, and the conduct of sampling activities. His field activities included verification that the sample locations were as specified in the sampling and analysis plan. The IQRPE's written report is provided in Appendix M and includes a list of data reviewed.

5 References

15-AMRP-0228, 2015, "Submittal of Permit Modification Request, Temporary Authorization Request, and Closure Plan for the 207-A South Retention Basin Treatment, Storage, and Disposal Unit" (letter to J.A. Hedges, Washington State Department of Ecology, from Stacy L. Charboneau), U.S. Department of Energy, Richland Operations Office, Richland, Washington, June 25. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0080919H.

15-NWP-141, 2015, "Request for Temporary Authorization to Implement a Class 3 Permit Modification Related to the Closure of the 207-A South Retention Basin" (letter to Stacy L. Charboneau, U.S. Department of Energy, Richland Operations Office, and John A. Ciucci, CH2M HILL Plateau Remediation Company from Suzanne Dahl), Washington State Department of Ecology, Richland, Washington, July 24. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=1507280679.

16-NWP-078, 2016, "Proposed Class 3 Permit Modification of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (The Permit), Part V, Closure Unit Group 5, 207-A South Retention Basin, WA7890008967" (letter to Kevin W. Smith, U.S. Department of Energy, Office of River Protection, Stacy L. Charboneau, Richland Operations Office, U.S. Department of Energy, Richland Operations Office, et al., from Suzanne Dahl), Washington State Department of Ecology, Richland, Washington, May 9.

16-NWP-163, 2016, "Class 3 Permit Modification 8c.2016.6F of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (Site-wide Permit), Part V, Closing Unit Group 207-A South Retention Basins (207-A SRB), WA7890008967" (letter to Kevin W. Smith, U.S. Department of Energy, Office of River Protection, Stacy L. Charboneau, Richland Operations Office, U.S. Department of Energy, Richland Operations Office, et al., from Suzanne Dahl), Washington State Department of Ecology, Richland, Washington, October 6. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=1610120413

40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," *Code of Federal Regulations*. Available at: http://www.gpo.gov/fdsys/pkg/CFR-2010-title40-vol8/xml/CFR-2010-title40-vol8-part61.xml.

DOE/RL-2015-51, 2015, *Action Memorandum for the Time-Critical Removal Action for 207-A South Retention Basin Closure Disposal at the Environmental Restoration Disposal Facility*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0079983H

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq. Available at: http://www.epa.gov/epawaste/inforesources/online/index.htm.

RCW 43.21C, "State Environmental Policy," *Revised Code of Washington*, Olympia, Washington. Available at: http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21C.

WA7890008967, 2016, *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, Part V (207-A South Retention Basins Closure Unit Group 5 (CUG-5), Chapter 4, 207-A South Retention Basins (S-2-7) Closure Plan), Washington State Department of Ecology, Richland, Washington. Available at: http://www.ecy.wa.gov/programs/nwp/permitting/HDWP/Rev/8c/8c_2016_Q2/207-A/207-A_SRB_Closure_Plan.pdf.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303.

WAC 173-340, "Model Toxics Control Act—Cleanup," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-340.

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Appendix A

Work Package and Work Record Entries

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Work Change Notice D4-15-03465 * 1 [SNF]

12/01/2016 12:52 PM

Document Number D4-15-03465 M MODIFICATION
WCN Number 1
Work Item Title D4, 207A (SOUTH) RETENTION BASIN DEMOLITION

Record Status ACT
Record Copy Printed Yes 1

Origination

Name	Date
Werry, Scott M	11/30/2016

Reason for Change

Add steps to install protective steel plates over underground 36" corugated pipe running in dump truck travel path.

Change Instructions

Incorporate the following changes.

Work Instructions:
Replace original Work Instruction pages 3, 11, 13, 23 thereby incorporating the following:

1) Reword Section 3.0, Step 3.1.1, sixth bulleted step as shown.
2) Reword Step 3.5, first bulleted step as shown.
3) Reword Section 4.0, fifth bulleted step as shown.
4) Add general note and specific steps to perform final backfilling to Section 5.4, Step 5.4.1, sixth bulleted step as shown.

Supporting Documents:

1) Add Hoisting and Rigging to original JHA (forklift use).

USQ Nuclear Safety Screening

Required N/A < HC-3 facility.

Carson, David [Approved] 11/30/2016

USQ Transportation & Packaging Screening

Required N/A Not T&P-related.

AJHA Review

Required Revised AJHA

N/A 11/30/2016

Facility Group SNF

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Work Change Notice D4-15-03465 * 1 [SNF]

12/01/2016 12:52 PM

Document Number D4-15-03465 M MODIFICATION
WCN Number 1
Work Item Title D4, 207A (SOUTH) RETENTION BASIN DEMOLITION

Record Status ACT
Record Copy Printed Yes 1

Review/Approval

Code	Description	Approval	Date
I	Industrial Hygiene & Safety	Barry, Henry T [Approved]	11/30/2016
PIC/FWS	Person In Charge/Field Work Supervisor	Idler, Dane L [Approved]	11/30/2016
RA	Release Authority Designation	Doremus, William [Approved]	12/01/2016
RM	Responsible Manager	Prichard, Earl A [Approved]	11/30/2016

HRB Required
Required No
Werry, Scott M [Approved] 11/30/2016

Incorporated By

Approval	Date
Werry, Scott M [Approved]	11/30/2016

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Work Document D4-15-03465 / M [SNF]

09/28/2015 7:32 AM

JD291421

Document Number D4-15-03465 M MODIFICATION
Work Item Title D4, 207A (SOUTH) RETENTION BASIN DEMOLITION

Record Status ACT
Record Copy Printed Yes 2

Symptom, Problem, or Condition

NEED TO REMOVE / DEMOLISH 207A SOUTH RETENTION BASIN AT 200E AREA.

Component Number **Component Name**

Temporary Component Number **Temporary Component Name**

Location

Facility D4 **System**
Building **Room**
Other 207A RETENTION BASIN **Other** 200 EAST

Charge Code

CACN	COA
303792	JPRC

Origination

Name Werry, Scott M **Phone** (509) 373-2957 **Date** 05/27/2015

Screening Information

Phase Designator D4 D&D Work
Priority 3 Priority Three
Mode N/A Not Applicable **Radiological Work**

Design/Tech. Authority

Name	Phone
Hollenbeck, Ronald G	(509) 373-5202

Responsible Manager

Name	Phone
Prichard, Earl A	(509) 372-2709

Resources Required

Code	Description	COCS	Role	No	Act Hr
13	CRANE/HYDROCR. OPR	R032	N/A		
13B	HEAVY EQUIP. OPR	R031	N/A		
14B	TRUCK DRIVER - HEAVY	R031	N/A		
54	HEALTH PHYSICS TECH	T050	N/A		
DDW	D&D WORKER	L090	N/A		
FWS	FIELD WORK SUPERVISOR	M010	N/A		

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Work Document D4-15-03465 / M [SNF]

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Document Number D4-15-03465 M MODIFICATION
Work Item Title D4, 207A (SOUTH) RETENTION BASIN DEMOLITION

Record Status ACT
Record Copy Printed Yes 2

Reference Documents

Category	Type	Description	Sheet	Coord	Revision
Embedded File		207A BFA			
Embedded File		Radiological Survey Data			
Reference	CRR	CULTURAL/ECOLOGICAL REVIEW			
Reference	DRWG	H-2-90783, H-2-90784, H-2-69292, H-2-69293			
Reference	ECN	ECN-712105			
Reference	EXCA	DAN15-0141			
Reference	INFO	DD-59197			
Reference	JHA	Job Hazard Analysis			
Reference	MIR	See WRPS Modification Traveler			
Reference	PFWR	PRC-025-15			
Embedded File	RHSF	RHSF-15-D4-011_207A Demolition			
Reference	RWP	L-15-341			
Reference	SD	Asbestos Negative Exposure Assessment			
Reference	SD	Cold and Dark Isolation Index / Report			
Reference	SD	HFD Demoliton Permit			
Reference	SD	HFD Walkthrough Checklist			
Reference	SD	IH Sample Plan			
Reference	WPC	WASTE PLANNING CHECK LIST			

AJHA Review
Required Yes
N/A 06/08/2015

HRB Required
Required No
Werry, Scott M [Approved] 05/27/2015

Environmental Screening
Required NEPA CX CX-00088 R1 McKibben, Jon W [Approved] 09/02/2015

Facility Group SNF

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Work Document D4-15-03465 / M [SNF] 09/28/2015 7:32 AM

JD291421

Document Number D4-15-03465 M MODIFICATION **Record Status** ACT
Work Item Title D4, 207A (SOUTH) RETENTION BASIN DEMOLITION **Record Copy Printed** Yes 2

Tech. Spec. / OSR Requirements Reference

Essential Systems

Code	Description

Review/Approval

Code	Description	Approval	Date
CP - ASB	Competent Persons - Asbestos	Idler, Dane L [Approved]	08/25/2015
CP - EXCVN	Competent Persons - Excavation	Idler, Dane L [Approved]	08/26/2015
DA	Design Authority	Hollenbeck, Ronald G [Approved]	08/26/2015
E	Environmental	McKibben, Jon W [Approved]	09/02/2015
F	Fire Marshall/Fire Protection Engineer	Anderlini, Larry E [Approved]	08/31/2015
I	Industrial Hygiene & Safety	Schwartz, Daren J [Approved]	09/08/2015
PIC/FWS	Person In Charge/Field Work Supervisor	Idler, Dane L [Approved]	08/25/2015
R	Radiation Protection	Kobierowski, Mitch [Approved]	09/09/2015
RM	Responsible Manager	Prichard, Earl A [Approved]	09/09/2015
W	Waste/Regulatory Compliance	Ortiz, Michael L [Approved]	09/02/2015

Facility Group SNF

*** RECORD COPY *** *** RECORD COPY *** *** RECORD COPY ***

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Work Document D4-15-03465 / M [SNF] 09/28/2015 7:32 AM

JD291421

Document Number D4-15-03465 M MODIFICATION **Record Status** ACT
Work Item Title D4, 207A (SOUTH) RETENTION BASIN DEMOLITION **Record Copy Printed** Yes 2

USQ Nuclear Safety Screening

Required N/A N/A-1 M. Higurea PTC

USQ Transportation & Packaging Screening

Required N/A
Werry, Scott M [Approved] 05/27/2015

Pre-Work Review

Approval	Date
Wieczorkowski, Daniel V [Transcribed]	09/24/2015

Person In Charge/Field Work Supervisor

Name	Phone
Fox, Charles R	(509) 373-7244

Work Release

Release Type ☒ Full ☐ Partial ☐ No Release Req'd

Approval Dan Hy **Date** 9/29/15

Work Suspended? ☐

Tagout Information

Number	Location
N/A	

Resolution / Retest

See embedded resolution.

Resolution By

Approval	Date
Werry, Scott M [Approved]	09/08/2015

Calibrated Standards/Equipment

Standard/Equipment	Exp Date
N/A	

Field Work Complete

Approval Dave L Idler / Dan Hy **Date** 12/5/16

Work Acceptance

Approval EARL PRICHARD JR Earl Prichard Jr **Date** 12/15/16

Post Work Review

Work Record Feedback Exists? ☐

Code	Description	Approval	Date
PLNPOST	PLANNER POST REVIEW		

Facility Group SNF

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Work Document D4-15-03465 / M [SNF] 09/28/2015 7:32 AM

JD291421

Document Number D4-15-03465 M MODIFICATION **Record Status** ACT
Work Item Title D4, 207A (SOUTH) RETENTION BASIN DEMOLITION **Record Copy Printed** Yes 2

POSTRVW	Post-Work Review		

Facility Group SNF

*** RECORD COPY *** *** RECORD COPY *** *** RECORD COPY ***

D4-15-03465 / M

D4, 207A (SOUTH) RETENTION BASIN DEMOLITION

6.0 END STATE SUMMARY

6.1 Perform the following:

1) FWS, CONTACT CHPRC RM (Earl Prichard 372-2709 or 438-7206) to arrange a field walk down with WRPS to verify the field work shown on ECN-712105 has been completed and the associated Modification Traveler is ready for final approval / release.
2) FWS, sign below indicating the field walk down has been completed.

Dane L Idler		12-5-16
FWS Print Name	Sign Name	Date

3) ENSURE a post-job review has been conducted with the work team. Document any feedback or lessons learned in the work package work record.

CHPRC WORK RECORD

1. **Document Number:** D4-15-03465/M

2. **Work Item Title:**
D4, 207A (SOUTH) RETENTION BASIN DEMOLITION

FB	Date	PR#	Turnover, Problem Description, Action Taken	Name (Print/Sign)	RES	HRS
	5.4.16		Pre-Job Completed hauled			
			30 gallon Drum w/ Dirt from	Dane L Idler		
			Sampling to ERDF		FWS	
	11.9.16		Added updated HFM Permit			
			to work package.		PLNR	
	12.1.16		Incorporated WCN 1		PLNR	
	12-2-16		Pre-Job Completed mobilized			
			Equipment placed steel plates			
			over pipe hauled 54 loads	Dane Idler		
			of Dirt for back fill		FWS	
	12-3-16		Pre-Job Completed hauled 54			
			loads spread and Rolled	Dane Idler		
			demobilized Equipment, Completed		FWS	
			Work at 207 A			

NOTE: Entries may be written across all columns to the right of Date, but each entry should be signed.

FB – √ or X if entry contains feedback to be captured
PR – Partial Release Number associated with this entry (Optional)
RES – Craft or Resource Code (optional)
HRS – Actual hours (optional)

A-6005-119 (REV 5)

CHPRC WORK RECORD	1. Document Number:

2. **Work Item Title:**

FB	Date	PR#	Turnover, Problem Description, Action Taken	Name (Print/Sign)	RES	HRS
	12/5/16		Performed Post Job w/craft			
			HEO, Teamsters, D&D, CO, RCT			
			No Concerns with the			
			process work was performed	Dane Idler/	FWS	
	12/5/16		Completed Final Walkdown			
			of the 207-A (South) Retention			
			Basin with the following			
			individuals: (CPS&M) Darin Correll,			
			David Phipps, Daniel Turlington,			
			(WRPS) Zak Schatz, Rob Dale,			
			Also Dane Idler (FWS),			
			Scott Werry (Planner) and			
			Earl Prichard (RM).	Earl Prichard Jr	RM	

NOTE: Entries may be written across all columns to the right of Date, but each entry should be signed.

FB – √ or X if entry contains feedback to be captured
PR – Partial Release Number associated with this entry (Optional)
RES – Craft or Resource Code (optional)
HRS – Actual hours (optional)

A-6005-119 (REV 5)

CHPRC WORK RECORD	1. Document Number:
2. Work Item Title:	

FB	Date	PR#	Turnover, Problem Description, Action Taken	Name (Print/Sign)	RES	HRS

NOTE: Entries may be written across all columns to the right of Date, but each entry should be signed.

FB – √ or X if entry contains feedback to be captured
PR – Partial Release Number associated with this entry (Optional)
RES – Craft or Resource Code (optional)
HRS – Actual hours (optional)

A-6005-119 (REV 5)

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Appendix B

CHPRC-1502655, Interoffice Memorandum, "Cultural and Ecological Review for the Demolition and Removal of the 207-A South Retention Basin"

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CH2MHILL
Plateau Remediation Company

INTEROFFICE MEMORANDUM

CHPRC-1502655

Date: June 25, 2015

To: D. R. Corriell, Director, Central Plateau Surveillance & Maintenance
E. A. Prichard, Project Manager, Decommissioning & Remediation Project

From: L. M. Dittmer, Subject Matter Expert, NEPA/SEPA/Cultural/Ecological
D. R. Turlington, Environmental Compliance Officer, Central Plateau Surveillance & Maintenance

Subject: CULTURAL AND ECOLOGICAL REVIEW FOR THE DEMOLITION AND REMOVAL OF THE 207-A SOUTH RETENTION BASIN

Reference: Memorandum, A. L. Johnson, MSA, to L. M. Dittmer, CHPRC, "Ecological and Cultural Clearance for Confirmation Sampling of the LLBG FS-1 Outdoor Container Storage Area, 200 West Area, Hanford Site, (HCRC#88-200-038, ECR-2015-243), MSA-1501895/CHPRC, dated April 28, 2015.

Demolition of the 207-A South Retention Basin, located in the 200 East Area of the Hanford Site, includes rubblizing and removal of the basin and up to a meter of underlying construction fill/gravel material, staging the material at the site, and disposal to the Environmental Restoration Disposal Facility. The excavation will be sampled to verify that it meets closure requirements. When the project has determined that no additional excavation is required, the site will be backfilled.

This memorandum documents a review for compliance with Plateau Remediation Contract requirements for the following:

- The ecological resources evaluation conducted by the Environmental Compliance Officer (ECO);
- The required instructions to staff who will be performing the work, for awareness of the need to protect cultural/historic artifacts and migratory birds, as well as the required response should these items be identified during the performance of the project; and
- The documentation that the scope of the action is covered by reviews that have been completed under Section 106 of the National Historic Preservation Act of 1966, As Amended (Section 106) to satisfy the cultural resource review requirement.

  This conclusion is consistent with the recent Ecological and Cultural Clearance for Sampling at the LLBG FS-1 Storage Area in 200 West (reference).

Cultural Evaluation

The questions below in bold are taken from the State Environmental Policy Act of 1971 (SEPA) checklist, with responses that document the prior Section 106 reviews that are applicable to this action:

a. **Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.**

   In 1990, a Cultural Resources Review was conducted for Hanford Site operations and cleanup activities within the 200 East and 200 West Areas. *The Archaeological Survey of the 200 East and 200 West Areas, Hanford Site, Washington* (HCRC#88-200-038) considered potential impacts to historic properties from Hanford operations within the 200 Areas (Chatters and Cadoret 1990). The finding reached is that no historic properties would be impacted as a result of on-going operations and cleanup within the 200 East Area, and that no additional Section 106 reviews are necessary to maintain this finding (Chatters and Cadoret 1990). Because Section 106 requirements have been previously met, no additional review of the project is required.

   There is no evidence in this area of historic use/occupation, or areas of cultural importance on or near the site. Extensive disturbance of this area during the installation of the basin, the evaporator systems, subsurface transfer pipelines and septic system has left no material evidence of a historic nature that could be observed at the work site.

b. **Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.**

   DOE/RL-96-77, *Programmatic Agreement Among the U.S. Department of Energy, Richland Operations Office, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington* (PA), addresses the built environment constructed during the Manhattan Project and Cold War Era periods of Hanford's operational history, encompassing the years 1943 through 1990. The PA directed that a Sitewide Treatment Plan be developed to identify, inventory, and evaluate all undertakings which may affect historic buildings and structures on the Hanford Site, and identifies those that require mitigation measures to preserve historic, architectural, and technological values.

   The U.S. Department of Energy Richland Operations office (DOE-RL), in consult with the Advisory Council on Historic Preservation and the State Historic Preservation Office (SHPO), developed DOE/RL-97-56, *Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan* (Sitewide Treatment Plan) to preserve the history of the site. The Sitewide Treatment Plan lists representative buildings and structures that

require mitigation (identification, removal, preservation of historically significant artifacts). The Sitewide Treatment Plan only covers the historic preservation procedures for the buildings/structures themselves, and 207-A South Retention Basin is on the *Non Contributing/Exempt Properties* list. Therefore, 207-A South Retention Basin is not included in the Sitewide Treatment Plan as a candidate for mitigation. The PA stipulates, in Section IV.F.; "For those properties for which no mitigation is required under the Sitewide Treatment Plan, RL and SHPO agree that no further communication or notification is necessary."

c. **Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

Prior to initiation of this project, all project staff will be trained, and the following language will be included in the project work package:

> If any cultural materials, including but not limited to stone tools, flakes, bones, shells, bottles, subsurface foundations, are discovered during the demolition of 207-A South Retention Basin, work in the vicinity of the discovery shall cease, and workers will contact the project ECO. The ECO will contact a cultural resource professional (e. g., archaeologist, historian), who will assess the significance of the find, and if necessary, arrange for the mitigation of the find.

Any required mitigation will take place in accordance with the Sitewide Treatment Plan and stipulation IV.D of the Programmatic Agreement.

<u>Ecological Resources Evaluation</u> - 207-A North & South Retention Basin Work Location

CHPRC Environmental Staff performed a pedestrian survey of the 200E 207-A North & South Retention Basin Project area on both March 2 and April 21 of 2015. The area consists of a severely disturbed location that has been excavated for the original installation of the 207-A Retention Basins and backfilled with construction grade fill and gravel. As well, the installation of numerous subsurface pipelines, structures, and a septic system around the area of 207-A South Retention Basin contribute to extensive ground disturbance(s) in the area. The perimeter of the retention basin includes a gravel berm approximately 2.4 m (8 ft.) high, 3.7 m (12 ft.) wide along the east side, and is bordered with paved roadways on all other sides (see attached photos).

Routine maintenance of this industrial setting includes herbicide application for vegetation control. Therefore, the entire Area of Concern is void of vegetation. No plant or animal species protected under the Endangered Species Act, candidates for such protection, or species listed by the Washington State government as threatened or endangered were observed in the vicinity of the proposed project site (see attached photos).

There is always the potential for birds to nest within the project area on the ground, on buildings, or equipment. The nesting season on the Hanford site is typically from mid-March to mid-July. Active nests (containing eggs or young) of migratory birds are protected by the Migratory Bird Treaty Act (MBTA) of 1918. The MBTA makes it illegal for individuals to "take" migratory birds, their eggs, feathers, or nests. "Take" is defined in the MBTA to include "by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof." Prior to initiation of this project, all project staff will be trained, and the following language will be included in the project work package:

> Personnel working on this project must watch for nesting birds. If any nesting birds (if not a nest, a pair of birds of the same species or a single bird that will not leave the area when disturbed) are encountered or suspected, or bird defensive behaviors (flying at workers, refusal to leave area, strident vocalizations) are observed within the project area, pause work and contact the project ECO to evaluate the situation.

No adverse impacts are anticipated from the proposed project if these recommendations are followed.

Provided as an attachment to this memorandum is a schematic of the retention basin, which shows the proximity to the 242-A Evaporator and several tank farms, as well as six photos of the unit taken in March and April, 2015.

R. H. Engelmann, Manager
Technical Services, Environmental Protection
Environmental Program & Strategic Planning

6/25/2015
Date

B. J. Dixon, Director
Environmental Compliance & Records
Sludge Treatment Project

6/25/15
Date

R. T. Swenson, Senior Counsel
General Counsel

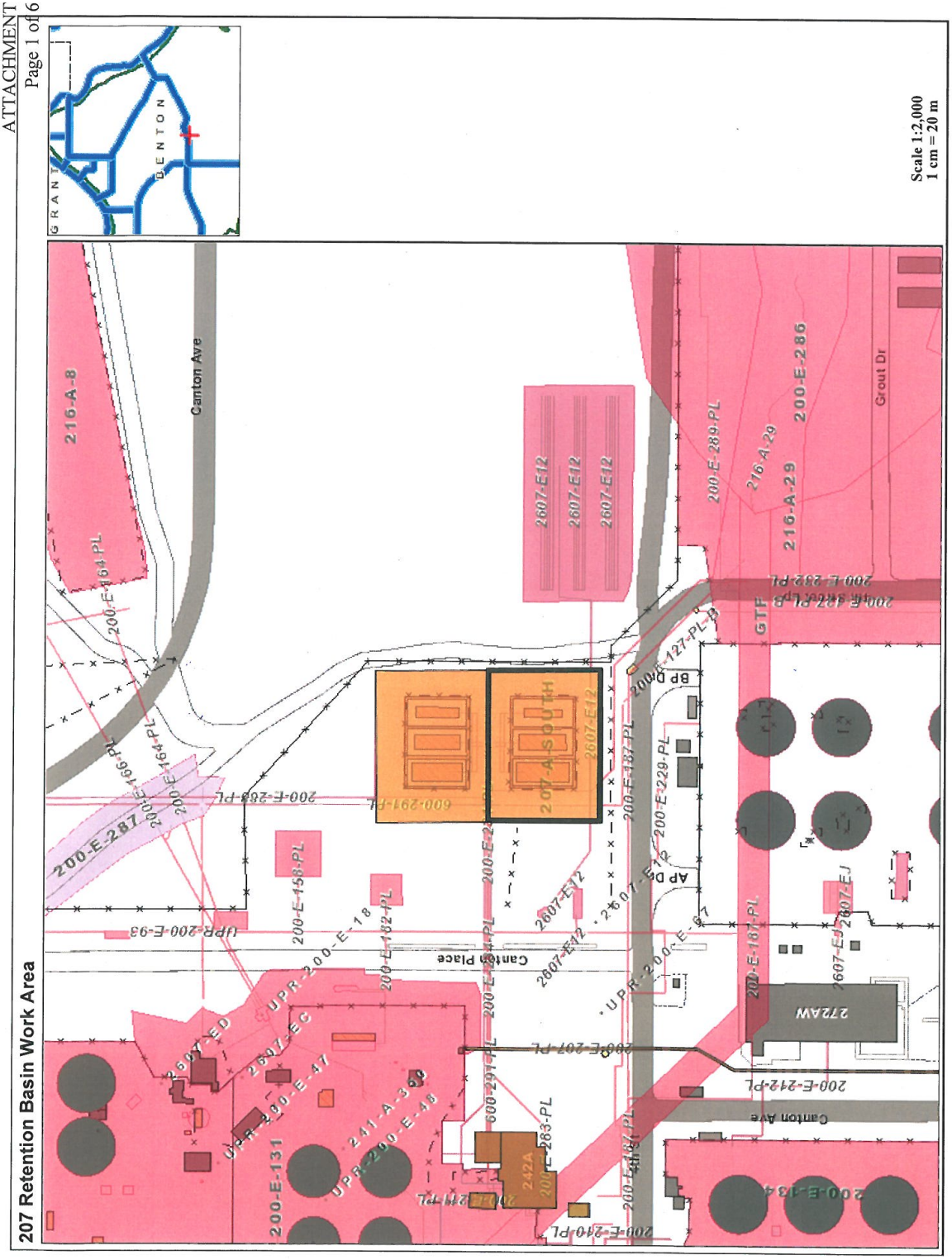
6/25/15
Date

lmd/drt/sb

Attachment

cc: CHPRC Correspondence Control, G3-39
L. J. Cusack, H8-45
M. N. Jaraysi
S. K. Johansen
E. D. Trotta, H8-66

CHPRC-1502655
ATTACHMENT
Page 1 of 6



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PHOTOGRAPHS

207-A South Retention Basin

207-A South Retention Basin

207-A South Retention Basin

207-A South Retention Basin

207-A South Retention Basin

207-A South Retention Basin

207-A South Retention Basin

Appendix C

Global Positioning System Survey of the 207A South Retention Basin

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SURVEY DATA REPORT				Request No. 161-006
Project No.	Title 207A South Retention Basins Sample Locations Staking			File No. 2ENE-030
Job. No. CACN: 303822-JPRC	Prepared By N.P. Fastabend	Date 11/5/15	Reviewer	

DESCRIPTION OF WORK	DISTRIBUTION	SDR	PLOT	DWG
Staked soil sample locations and bottom corners of Cells 1, 2 and 3 at the 207A South Retention Basins site as directed to support sampling after removal of concrete structure.	Survey File	OR		
	E.A. Prichard	1		
	B.J. Dixon	1		
	D. Todak	1		
	J.W. McKibben	1		
Horizontal Coordinate System: WCS83S/91 (Meters) Vertical Datum: NAVD88 (Meters)	J.L. Hammons	1		

SURVEY RESULTS AND COMMENTS

Point No.	North	East	Ground Elev.	Description
1	135984.74	575555.62	203.84	Set Stake-Bottom NW Cor Cell-1
2	135984.79	575558.69	203.78	Set Stake-Bottom NE Cor Cell-1
3	135967.91	575558.73	203.93	Set Stake-Bottom SE Cor Cell-1
4	135967.85	575555.76	203.87	Set Stake-Bottom SW Cor Cell-1
5	135985.21	575568.37	203.87	Set Stake-Bottom NW Cor Cell-2
6	135985.21	575571.40	203.91	Set Stake-Bottom NE Cor Cell-2
7	135968.33	575571.51	203.94	Set Stake-Bottom SE Cor Cell-2
8	135968.36	575568.58	203.87	Set Stake-Bottom SW Cor Cell-2
9	135984.98	575580.99	204.02	Set Stake-Bottom NW Cor Cell-3
10	135985.03	575584.03	203.91	Set Stake-Bottom NE Cor Cell-3
11	135968.23	575584.22	203.97	Set Stake-Bottom SE Cor Cell-3
12	135968.21	575581.19	203.97	Set Stake-Bottom SW Cor Cell-3

A-6006-495 (REV 0)

SURVEY DATA REPORT		Request No. 161-006
Project No.	Title 207A South Retention Basins Sample Locations Staking	File No. 2ENE-030

Sample ID	North	East	Ground Elev.	Description
207-A-1	135966.93	575550.19	205.80	Set Stake
207-A-2	135967.02	575558.89	204.12	Set Stake
207-A-3	135967.11	575567.60	204.10	Set Stake
207-A-4	135967.19	575576.31	205.47	Set Stake
207-A-5	135967.28	575585.02	204.42	Set Stake
207-A-6	135974.51	575554.46	203.97	Set Stake
207-A-7	135974.60	575563.17	204.16	Set Stake
207-A-8	135974.69	575571.88	203.80	Set Stake
207-A-9	135974.78	575580.59	203.81	Set Stake
207-A-10	135974.87	575589.29	205.56	Set Stake
207-A-11	135982.01	575550.03	205.95	Set Stake
207-A-12	135982.10	575558.74	203.75	Set Stake
207-A-13	135982.19	575567.45	204.30	Set Stake
207-A-14	135982.28	575576.15	205.51	Set Stake
207-A-15	135982.36	575584.86	203.99	Set Stake
207-A-16	135989.52	575554.34	205.67	Set Stake
207-A-17	135989.68	575563.02	205.79	Set Stake
207-A-18	135989.77	575571.72	205.74	Set Stake
207-A-19	135989.86	575580.43	205.66	Set Stake
207-A-20	135989.95	575589.14	205.66	Set Stake
207-A-FS-21	135971.05	575555.78	203.88	Set Stake
207-A-FS-22	135976.58	575558.68	203.82	Set Stake
207-A-FS-23	135980.17	575555.67	203.73	Set Stake
207-A-FS-24	135969.71	575571.46	203.89	Set Stake
207-A-FS-25	135976.15	575568.50	203.89	Set Stake

A-6006-495 (REV 0)

SURVEY DATA REPORT		Request No. 161-006
Project No.	Title 207A South Retention Basins Sample Locations Staking	File No. 2ENE-030

Sample ID	North	East	Ground Elev.	Description
207-A-FS-26	135983.98	575571.40	203.83	Set Stake
207-A-FS-27	135968.21	575582.73	203.91	Set Stake
207-A-FS-28	135976.42	575584.02	203.92	Set Stake
207-A-FS-29	135985.02	575582.50	203.85	Set Stake
207-A-FS-30	135967.70	575534.25	206.40	Set Stake
207-A-FS-31	135973.91	575536.18	206.49	Set Stake
207-A-FS-32	135970.95	575540.59	206.25	Set Stake

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Appendix D

Environmental Restoration Disposal Facility Shipment Log

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OWTF	Profile	Volume	Origin	Cont #	Net Wgt #	Tons	Received
200E-15-0236	WP207AD4002	9.5	OHC	3238	33,569	16.78	10/06/2015
200E-15-0237	WP207AD4002	9.5	OHC	P263	35,346	17.67	10/06/2015
200E-15-0238	WP207AD4002	9.5	OHC	3115	40,235	20.12	10/06/2015
200E-15-0239	WP207AD4002	9.5	OHC	P134	35,885	17.94	10/06/2015
200E-15-0240	WP207AD4002	9.5	OHC	3234	36,144	18.07	10/06/2015
200E-15-0241	WP207AD4002	9.5	OHC	P353	37,821	18.91	10/06/2015
200E-15-0242	WP207AD4002	9.5	OHC	3038	33,550	16.77	10/06/2015
200E-15-0243	WP207AD4002	9.5	OHC	P486	37,401	18.70	10/06/2015
200E-15-0244	WP207AD4002	9.5	OHC	P500	34,967	17.48	10/06/2015
200E-15-0245	WP207AD4002	9.5	OHC	P333	25,606	12.80	10/06/2015
200E-15-0246	WP207AD4002	9.5	OHC	P217	31,155	15.58	10/06/2015
200E-15-0247	WP207AD4002	9.5	OHC	P032	32,492	16.25	10/06/2015
200E-15-0248	WP207AD4002	9.5	OHC	3022	32,452	16.23	10/06/2015
200E-15-0249	WP207AD4002	9.5	OHC	3248	32,731	16.37	10/06/2015
200E-15-0250	WP207AD4002	9.5	OHC	P003	32,412	16.21	10/06/2015
200E-15-0251	WP207AD4002	9.5	OHC	3062	30,436	15.22	10/06/2015
200E-15-0252	WP207AD4002	9.5	OHC	P007	38,020	19.01	10/06/2015
200E-15-0253	WP207AD4002	9.5	OHC	P185	30,755	15.38	10/06/2015
200E-15-0254	WP207AD4002	9.5	OHC	3215	38,519	19.26	10/06/2015
200E-15-0255	WP207AD4002	9.5	OHC	P472	27,861	13.93	10/06/2015
200E-15-0256	WP207AD4002	9.5	OHC	3100	35,785	17.89	10/06/2015
200E-15-0257	WP207AD4002	9.5	OHC	P346	32,911	16.46	10/06/2015
200E-15-0258	WP207AD4002	9.5	OHC	P261	35,585	17.79	10/06/2015
200E-15-0259	WP207AD4002	9.5	OHC	3203	43,349	21.67	10/06/2015
200E-15-0260	WP207AD4002	9.5	OHC	P064	24,888	12.44	10/06/2015
200E-15-0261	WP207AD4002	9.5	OHC	3216	34,248	17.12	10/06/2015
200E-15-0262	WP207AD4002	9.5	OHC	P082	36,204	18.10	10/06/2015
200E-15-0263	WP207AD4002	9.5	OHC	P150	28,440	14.22	10/06/2015
200E-15-0264	WP207AD4002	9.5	OHC	3134	42,511	21.26	10/06/2015
200E-15-0265	WP207AD4002	9.5	OHC	P499	43,808	21.90	10/06/2015
200E-15-0266	WP207AD4002	9.5	OHC	P084	30,077	15.04	10/06/2015
200E-15-0267	WP207AD4002	9.5	OHC	3091	34,148	17.07	10/06/2015
200E-15-0298	WP207AD4002	9.5	OHC	P108	33,889	16.94	10/15/2015
200E-15-0299	WP207AD4002	9.5	OHC	P344	34,068	17.03	10/15/2015
200E-15-0300	WP207AD4002	9.5	OHC	P387	31,873	15.94	10/15/2015
200E-15-0301	WP207AD4002	9.5	OHC	3027	28,640	14.32	10/14/2015
200E-15-0302	WP207AD4002	9.5	OHC	3020	30,336	15.17	10/14/2015
200E-15-0303	WP207AD4002	9.5	OHC	3190	36,144	18.07	10/14/2015
200E-15-0304	WP207AD4002	9.5	OHC	3143	34,907	17.45	10/14/2015
200E-15-0305	WP207AD4002	9.5	OHC	P288	33,709	16.85	10/15/2015
200E-15-0306	WP207AD4002	9.5	OHC	P426	36,683	18.34	10/14/2015
200E-15-0307	WP207AD4002	9.5	OHC	3120	37,342	18.67	10/14/2015

200E-15-0308	WP207AD4002	9.5 OHC	P414	28,500	14.25	10/15/2015
200E-15-0309	WP207AD4002	9.5 OHC	P149	34,667	17.33	10/15/2015
200E-15-0310	WP207AD4002	9.5 OHC	P154	32,871	16.44	10/14/2015
200E-15-0311	WP207AD4002	9.5 OHC	P415	34,148	17.07	10/15/2015
200E-15-0312	WP207AD4002	9.5 OHC	3189	42,032	21.02	10/14/2015
200E-15-0313	WP207AD4002	9.5 OHC	3031	34,488	17.24	10/14/2015
200E-15-0314	WP207AD4002	9.5 OHC	P252	32,572	16.29	10/15/2015
200E-15-0315	WP207AD4002	9.5 OHC	3108	30,077	15.04	10/15/2015
200E-15-0316	WP207AD4002	9.5 OHC	P017	31,574	15.79	10/15/2015
200E-15-0317	WP207AD4002	9.5 OHC	3151	34,587	17.29	10/15/2015
200E-15-0318	WP207AD4002	9.5 OHC	3099	39,218	19.61	10/15/2015
200E-15-0319	WP207AD4002	9.5 OHC	3033	36,763	18.38	10/19/2015
200E-15-0320	WP207AD4002	9.5 OHC	P127	39,357	19.68	10/19/2015
200E-15-0321	WP207AD4002	9.5 OHC	3067	35,705	17.85	10/19/2015
200E-15-0322	WP207AD4002	9.5 OHC	P214	36,224	18.11	10/15/2015
200E-15-0323	WP207AD4002	9.5 OHC	P333	30,935	15.47	10/15/2015
200E-15-0324	WP207AD4002	9.5 OHC	P257	33,909	16.95	10/15/2015
200E-15-0325	WP207AD4002	9.5 OHC	3170	37,860	18.93	10/15/2015
200E-15-0326	WP207AD4002	9.5 OHC	3041	35,984	17.99	10/15/2015
200E-15-0327	WP207AD4002	9.5 OHC	P351	32,372	16.19	10/15/2015
200E-15-0328	WP207AD4002	9.5 OHC	P045	33,549	16.77	10/15/2015
200E-15-0329	WP207AD4002	9.5 OHC	3211	38,958	19.48	10/15/2015
200E-15-0330	WP207AD4002	9.5 OHC	P473	34,009	17.00	10/15/2015
200E-15-0331	WP207AD4002	9.5 OHC	P047	34,627	17.31	10/15/2015
200E-15-0332	WP207AD4002	9.5 OHC	P500	43,548	21.77	10/15/2015
200E-15-0333	WP207AD4002	9.5 OHC	P402	30,476	15.24	10/15/2015
200E-15-0334	WP207AD4002	9.5 OHC	P008	23,032	11.52	10/15/2015
					1184.43	

Appendix E

Sampling Logbook and Data Forms

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Logbook: HNF-N-507-30 / Pg. 42 **SAMPLE DATE:** 11/12/2015
PROJECT TITLE: 207-A South Retention Basin-Closure Plan - Soil **S.A.F #:** F15-049
TRAVELER: TRVL-15-142 **Charge code:** 303792 / JPRC
TYPE OF PROTOCOL: Sampling performed per RCRA protocol.
CUSTOMER: E. Prichard
PURPOSE: For Characterization of Closure of the 207-A Retention Basin.
DOCUMENTS: SAF # F15-049, Traveler number TRVL-15-142, along with Sampling Procedures: RR ID # 12116, 12118, 12119, 12123 & 12124.
FACILITY CONTACT: E. Prichard

PERSONNEL:		
	J. Hammons	GW FWS
	KC Patterson	Sampling NCO (Nuclear Chemical Operator)
	BE Briggs	Sampling NCO
	FM Hall	Sampling NCO
	WM Wise	Sampling NCO (TRNG)
	P. Vopalinsky	Safety S&GRP
	T. Oliver	Akana- IQRPE
	B. Barnes	EP
	M. Boyd	EP
	J. McK	ECO
	T. Mullan	Ecology
	K. Larson	RCT CHPRC
	S. Hanby	RCT CHPRC

COPY

Weather : 41°F Overcast, wind @ 3 mph NNE, 65% Humidity.
PPE : Safety Glasses, reflective clothing, safety shoes, and surgeon gloves.
0655 Filled FTB 207-A-5 at the 6269 facility.
0700 Filled FTB 207-A-14 at the 6269 facility.
SAMPLE LOCATION: 207-A Retention Basin, 200 E Area.
0756 Arrived on site 207-A Retention Basin.
0800 Pre-job given by E. Prichard – director of D4. Discussed: Take cover, evacuation, staging area location, PPE Requirements, and safety related items associated with working in an excavation area. Had an introduction to all of the personnel onsite for this sampling evolution.

Logbook: HNF-N-507-30 / Pg. 43 **SAMPLE DATE:** 11/12/2015

0805 Informed by Safety S&GRP that the excavation safety inspection was complete and entry into the dig site was allowed.

0835 Sample evolution begins. Samples will be taken within six (6) inches to the West of each stake to ensure the sample material is not compromised by the stake itself. The first three (3) sample locations will be 207-A-9, A-8, and 207-A-Cell 1-sample 2, (FS-22) which were identified and chosen by Ecology; "as locations that Ecology has requested a split sample be taken from".

Sample Method: Using certified clean new Terra-core samples the top ¼ inch layer of soil was scraped aside and the terra-core plunged into the soil to capture sample material that was then pushed into new certified clean 40 mL aGs* lot# B01591VB. Using laboratory cleaned stainless steel equipment; a hand shovel was used to scooped soil into a 2 mm sieve, the ample material was sifted and captured into a bowl, where using a certified new clean plastic 2 ounce scoop the sample material was then placed into a certified new clean 250 mL aG WM bottle Lot#: 042219.

0839 Sampling 207-A-9 Location. Sample #'s: B32HT2, and B32HT3. Ecology Split sample (A-9) was also taken.

0850 Sampling 207-A-8 Location. Sample #'s: B32HT0, and B32HT1. Ecology Split sample (A-8) was also taken.

Logbook: HNF-N-507-30 / Pg. 44 **SAMPLE DATE:** 11/12/2015

0900 Sampling 207-A- Cell 1- Sample 2 (FS-22) Location. Sample #'s: B32HX2, and B32HX3. Ecology Split sample (A-FS-22) was also taken.

0908 Sampling 207-A-15 Location. Sample #'s: B32HV8, and B32HV9. 207-A-15 Duplicate sample was also taken, Sample #'s: B32HW0, and B32HW1.

COPY

0918 Sampling 207-A- Cell 3- Sample 3 (FS-29) Location. Sample #'s: B32HY6, and B32HY7.

0927 Custody of the Ecology Split Samples were transfer from Sampler – F. Hall CHPRC to T. Mullan Ecology per an ALS laboratory group Chain of custody.

0932 Sampling 207-A- Cell 3- Sample 2 (FS-28) Location. Sample #'s: B32HY4, and B32HY5.

0937 Sampling 207-A-5 Location. Sample #'s: B32HR0, and B32HR1.

0941 All of the Ecology, Safety, and EP personnel off-site.

0944 Sampling 207-A- Cell 3- Sample 1 (FS-27) Location. Sample #'s: B32HY2, and B32HY3.

0957 Sampling 207-A- Cell 2- Sample 1 (FS-24) Location. Sample #'s: B32HX6, and B32HX7, Sample #'s: B32J00.

1005 Sampling 207-A-3 Location. Sample #'s: B32HP6, and B32HP7.

1012 Sampling 207-A- Cell 2- Sample 3 (FS-26) Location. Sample #'s: B32HY0, and B32HY1.

1017 Sampling 207-A-13 Location. Sample #'s: B32HV4, and B32HV5.

Logbook: HNF-N-507-30 / Pg. 45 **SAMPLE DATE: 11/12/2015**

1023 Sampling 207-A- Cell 2- Sample 2 (FS-25) Location. Sample #'s: B32HX8, and B32HX9.

1029 Sampling 207-A-12 Location. Sample #'s: B32HV2, and B32HV3.

1035 Sampling 207-A- Cell 1- Sample 3 (FS-23) Location. Sample #'s: B32HX4, and B32HX5.

1041 Sampling 207-A-6 Location. Sample #'s: B32HR4, and B32HR5. 207-A-15 Duplicate sample was also taken, Sample #'s: B32HR6, and B32HR7.

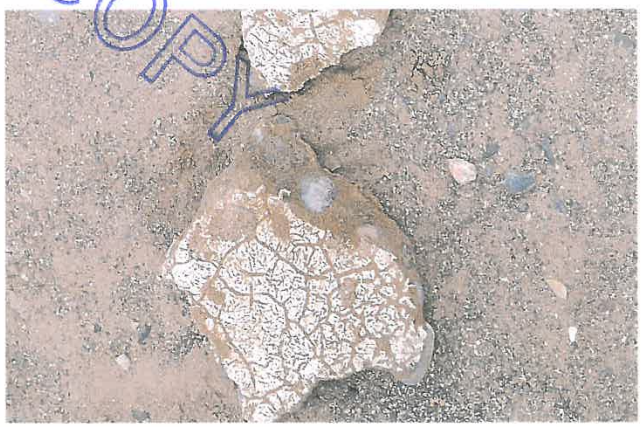
1051 Sampling 207-A-7 Location. Sample #'s: B32HR8, and B32HR9.

1057 Sampling 207-A- Cell 1- Sample 1 (FS-21) Location. Sample #'s: B32HX0, and B32HX1.

1103 Sampling 207-A-2 Location. Sample #'s: B32HP4, and B32HP5.

1112 Sampling 207-A-4 Location. Sample #'s: B32HP8, and B32HP9.

1117 Sampling 207-A-10 Location. Sample #'s: B32HT6, and B32HT7. 207-A-10 Split sample was also taken, Sample #'s: B32HT8, and B32HT8.



1125 Sampling 207-A-20 Location. Sample #'s: B32HY8, and B32HY9. Residual basin material was found at the sample location under the surface.

FWS notified of the anomaly. Sample was completed.

1133 Sampling 207-A19 Location. Sample #'s: B32HW8, and B32HW9.

1138 Sampling 207-A-14 Location. Sample #'s: B32HT4, and B32HT5.

1143 Sampling 207-A-18 Location. Sample #'s: B32HW6, and B32HW7.

1148 Sampling 207-A-17 Location. Sample #'s: B32HW4, and B32HW5.

1153 Sampling 207-A-16 Location. Sample #'s: B32HW2, and B32HW3.

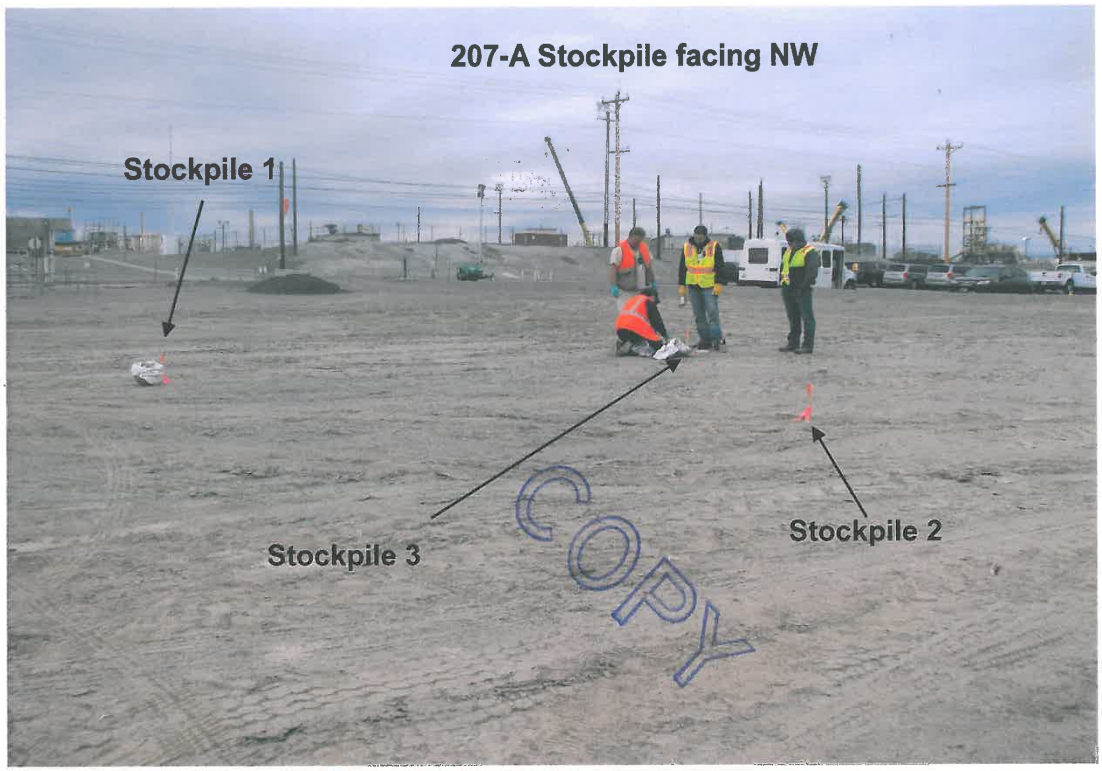
1158 Sampling 207-A-11 Location. Sample #'s: B32HV0, and B32HV1.

1204 Sampling 207-A-1 Location. Sample #'s: B32HP2, and B32HP3.

1209 Sampling 207-A-Stockpile3 (FS-32) Location. Sample #'s: B32J15, and B32J16

1214 Sampling 207-A-Stockpile2 (FS-31) Location. Sample #'s: B32J13, and B32J14.

Logbook: **HNF-N-507-30 / Pg. 46** **SAMPLE DATE:** **11/12/2015**



1219 Sampling 207-A-Stockpile1 (FS-32) Location. Sample #'s: B32J11, and B32J12. Using a different lot# bottle for the 250 mL aG, New Lot#: 041678.

1340 All sample stainless sample equipment was surveyed and released by CH RCTs.

1345 CH RCTs off-site.

1355 Excavation waste bag was placed into onsite satellite accumulation box.

1400 Sample Evolution complete.

1410 Off-site 207-A Retention Basin, communications radio returned to evaporator control room.

1430 Samples placed into SSU-1 at the 6269 storage facility to await shipment to corresponding laboratories.

1435 No further entries this date.

42

Project 207-A Closure Plan. Notebook No. HNF-N-507-30

Continues from Page N/A

Logbook: HNF-N-507-30 / Pg. 42 **SAMPLE DATE:** 11/12/2015

PROJECT TITLE: 207-A South Retention Basin-Closure Plan - Soil **S.A.F #:** F15-049

TRAVELER: TRVL-15-142 **Charge code:** 303792 / JPRC

TYPE OF PROTOCOL: Sampling performed per RCRA protocol.

CUSTOMER: E. Prichard

PURPOSE: For Characterization of Closure of the 207-A Retention Basin.

DOCUMENTS: SAF # F15-049, Traveler number TRVL-15-142, along with Sampling Procedures: RR ID # 12116, 12118, 12119, 12123 & 12124.

FACILITY CONTACT: E. Prichard

PERSONNEL:

J. Hammons	GW FWS
KC Patterson	Sampling NCO (Nuclear Chemical Operator)
BE Briggs	Sampling NCO
FM Hall	Sampling NCO
WM Wise	Sampling NCO (TRNG)
P. Vopalinsky	Safety S&GRP
T. Oliver	Akana- IQRPE
B. Barnes	EP
M. Boyd	EP
J. McK	ECO
T. Mullan	Ecology
K. Larson	RCT CHPRC
S. Hanby	RCT CHPRC

COPY

Weather : 41°F Overcast, wind @ 3 mph NNE, 65% Humidity.

PPE : Safety Glasses, reflective clothing, safety shoes, and surgeon gloves.

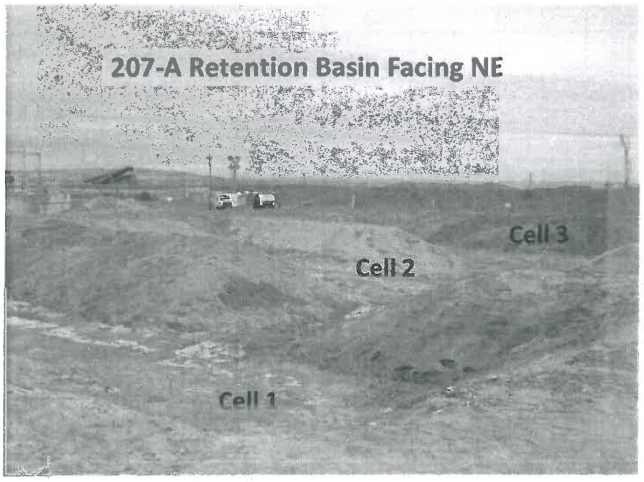
0655 Filled FTB 207-A-5 at the 6269 facility.

0700 Filled FTB 207-A-14 at the 6269 facility.

SAMPLE LOCATION: 207-A Retention Basin, 200 E Area.

0756 Arrived on site 207-A Retention Basin.

0800 Pre-job given by E. Prichard – director of D4. Discussed: Take cover, evacuation, staging area location, PPE Requirements, and safety related items associated with working in an excavation area. Had an introduction to all of the personnel onsite for this sampling evolution.



Continued on Page

*NOTE - ONE FORM ATTACHED THIS PAGE.

Read and Understood By

Signed	Date	Signed	Date
	11/12/15		

Project 207-A Closure Plan. Notebook No. HNF-N-507-30

Continues from Page ~~NA~~ 42

Logbook: HNF-N-507-30 / Pg. 43 **SAMPLE DATE:** 11/12/2015

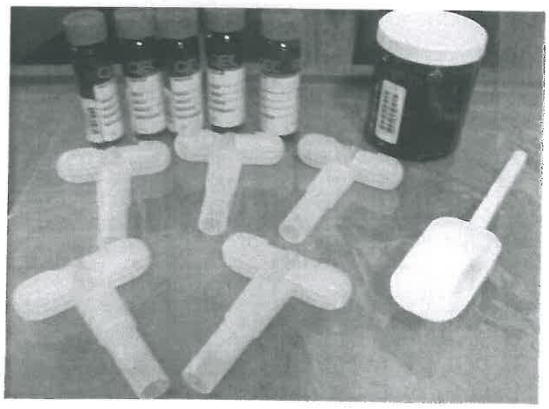
11/12/15

0805 Informed by Safety S&GRP that the excavation safety inspection was complete and entry into the dig site was allowed.

0835 Sample evolution begins. Samples will be taken within six (6) inches to the West of each stake to ensure the sample material is not compromised by the stake itself. The first three (3) sample locations will be 207-A-9, A-8, and 207-A-Cell 1-sample 2, (FS-22) which were identified and chosen by Ecology; "as locations that Ecology has requested a split sample be taken from".

Sample Method: Using certified clean new Terra-core samples the top ¼ inch layer of soil was scraped aside and the terra-core plunged into the soil to capture sample material that was then pushed into new certified clean 40 mL aGs* lot# B01591VB. Using laboratory cleaned stainless steel equipment; a hand shovel was used to scooped soil into a 2 mm sieve, the ample material was sifted and captured into a bowl, where using a certified new clean plastic 2 ounce scoop the sample material was then placed into a certified new clean 250 mL aG WM bottle Lot#: 042219.

COPY



0839 Sampling 207-A-9 Location. Sample #'s: B32HT2, and B32HT3. Ecology Split sample (A-9) was also taken.

0850 Sampling 207-A-8 Location. Sample #'s: B32HT0, and B32HT1. Ecology Split sample (A-8) was also taken.

11/12/15

*NOTE * ONE FORM ATTACHED THIS PAGE

Continued on Page 44

Read and Understood By

Signed	Date	Signed	Date
	11/12/15		

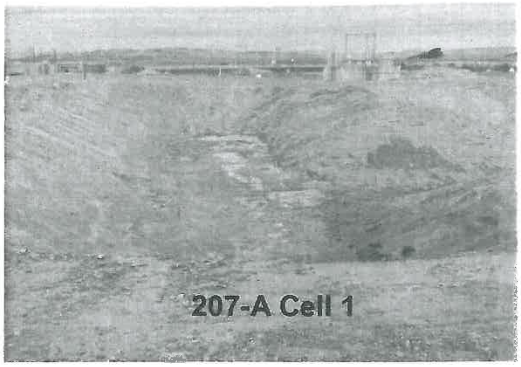
Project 207-A Closure Plan Notebook No. HNF-N-507-30

Continues from Page 43

11/12/15

Logbook: HNF-N-507-30 / Pg. 44 **SAMPLE DATE:** 11/12/2015

0900 Sampling 207-A- Cell 1- Sample 2 (FS-22) Location. Sample #'s: B32HX2, and B32HX3. Ecology Split sample (A-FS-22) was also taken.



0908 Sampling 207-A-15 Location. Sample #'s: B32HV8, and B32HV9. 207-A-15 Duplicate sample was also taken, Sample #'s: B32HW0, and B32HW1.

0918 Sampling 207-A- Cell 3- Sample 3 (FS-29) Location. Sample #'s: B32HY6, and B32HY7.

0927 Custody of the Ecology Split Samples were transfer from Sampler – F. Hall CHPRC to T. Mullan Ecology per an ALS laboratory group Chain of custody.

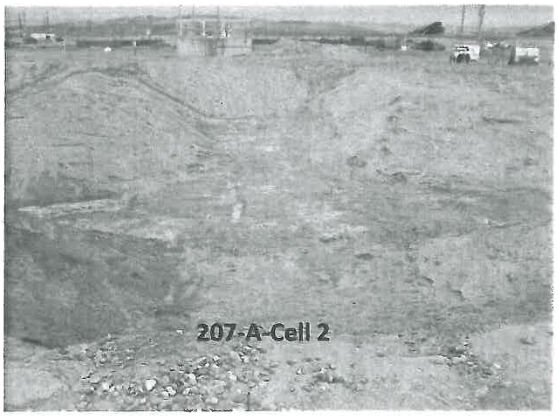
0932 Sampling 207-A- Cell 3- Sample 2 (FS-28) Location. Sample #'s: B32HY4, and B32HY5.

0937 Sampling 207-A-5 Location. Sample #'s: B32HR0, and B32HR1.

0941 All of the Ecology, Safety, and EP personnel off-site.

0944 Sampling 207-A- Cell 3- Sample 1 (FS-27) Location. Sample #'s: B32HY2, and B32HY3.

0957 Sampling 207-A- Cell 2- Sample 1 (FS-24) Location. Sample #'s: B32HX6, and B32HX7, Sample #'s: B32J00.



1005 Sampling 207-A-3 Location. Sample #'s: B32HP6, and B32HP7.

1012 Sampling 207-A- Cell 2- Sample 3 (FS-26) Location. Sample #'s: B32HY0, and B32HY1.

1017 Sampling 207-A-13 Location. Sample #'s: B32HV4, and B32HV5.

11/12/15

NOTE - ONE FORM ATTACHED THIS PAGE

Continued on Page 45

Read and Understood By

Signed	Date	Signed	Date
	11/12/15		

Project 207-A Closure Plan Notebook No. HNF-N-507-30

Continues from Page 44

Logbook: HNF-N-507-30 / Pg. 45 **SAMPLE DATE: 11/12/2015**

11/12/15

1023 Sampling 207-A- Cell 2- Sample 2 (FS-25) Location. Sample #'s: B32HX8, and B32HX9.

1029 Sampling 207-A-12 Location. Sample #'s: B32HV2, and B32HV3.

1035 Sampling 207-A- Cell 1- Sample 3 (FS-23) Location. Sample #'s: B32HX4, and B32HX5.

1041 Sampling 207-A-6 Location. Sample #'s: B32HR4, and B32HR5. 207-A-15 Duplicate sample was also taken, Sample #'s: B32HR6, and B32HR7.

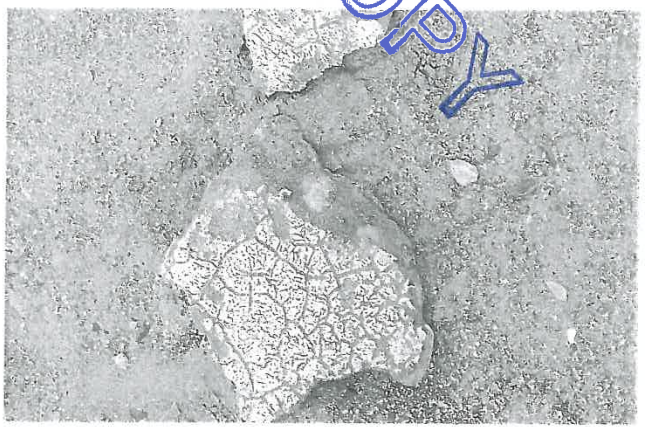
1051 Sampling 207-A-7 Location. Sample #'s: B32HR8, and B32HR9.

1057 Sampling 207-A- Cell 1- Sample 1 (FS-21) Location. Sample #'s: B32HX0, and B32HX1.

1103 Sampling 207-A-2 Location. Sample #'s: B32HP4, and B32HP5.

1112 Sampling 207-A-4 Location. Sample #'s: B32HP8, and B32HP9.

1117 Sampling 207-A-10 Location. Sample #'s: B32HT6, and B32HT7. 207-A-10 Split sample was also taken, Sample #'s: B32HT8, and B32HT8.



1125 Sampling 207-A-20 Location. Sample #'s: B32HY8, and B32HY9. Residual basin material was found at the sample location under the surface. FWS notified of the anomaly. Sample was completed.

1133 Sampling 207-A19 Location. Sample #'s: B32HW8, and B32HW9.

1138 Sampling 207-A-14 Location. Sample #'s: B32HT4, and B32HT5.

1143 Sampling 207-A-18 Location. Sample #'s: B32HW6, and B32HW7.

1148 Sampling 207-A-17 Location. Sample #'s: B32HW4, and B32HW5.

1153 Sampling 207-A-16 Location. Sample #'s: B32HW2, and B32HW3.

1158 Sampling 207-A-11 Location. Sample #'s: B32HV0, and B32HV1.

1204 Sampling 207-A-1 Location. Sample #'s: B32HP2, and B32HP3.

1209 Sampling 207-A-Stockpile3 (FS-32) Location. Sample #'s: B32J15, and B32J16

1214 Sampling 207-A-Stockpile2 (FS-31) Location. Sample #'s: B32J13, and B32J14.

11/12/15

* NOTE - ONE FORM ATTACHED THIS PAGE.

Continued on Page 46

Read and Understood By

Signed	Date	Signed	Date
	11/12/15		

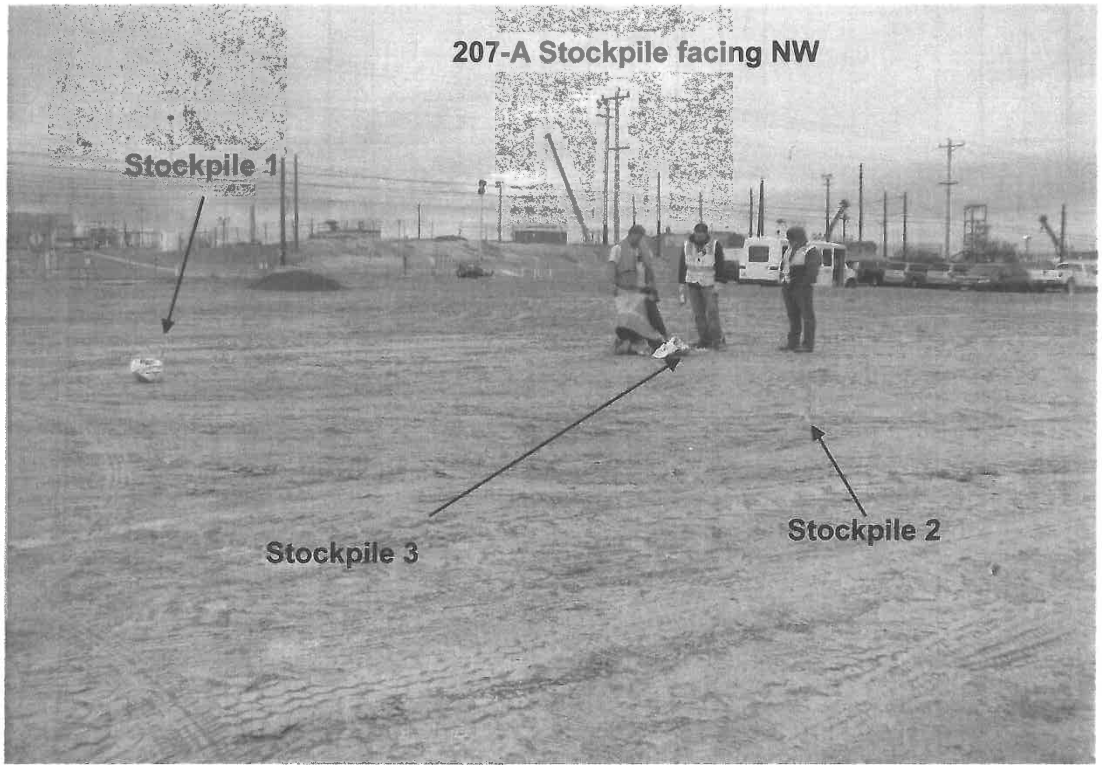
46

Project 207-A Closure Plan Notebook No. HNF-N-507-30

Continues from Page 45

Logbook: HNF-N-507-30 / Pg. 46 **SAMPLE DATE:** 11/12/2015

11/12/15



1219 Sampling 207-A-Stockpile1 (FS-32) Location. Sample #'s: B32J11, and B32J12. Using a different lot# bottle for the 250 mL aG, New Lot#: 041678.

1340 All sample stainless sample equipment was surveyed and released by CH RCTs.

1345 CH RCTs off-site.

1355 Excavation waste bag was placed into onsite satellite accumulation box.

1400 Sample Evolution complete.

1410 Off-site 207-A Retention Basin, communications radio returned to evaporator control room.

1430 Samples placed into SSU-1 at the 6269 storage facility to await shipment to corresponding laboratories.

1435 No further entries this date.

11/12/15

* NOTE - ONE FORM ATTACHED THIS PAGE.

11/12/15

Continued on Page N/A

Read and Understood By

Signed	Date	Signed	Date
	11/12/15		

DAILY EXCAVATION/TRENCHES SAFETY INSPECTION LOG

Project/Work Document No.: 200E / 207A (EAST OF EVAPORATOR)

The applicable items listed on the Daily Excavation/Trenches Safety Inspection Checklist were verified. Deficiencies observed are noted with the corresponding action that was taken to eliminate the hazard.

Date	Time	Condition		Comments/Deficiencies Noted	Corrective Action Taken	Inspected By (Competent Person)
		Accept	Not Accept			
11/12/2015	0700	☑	☐	SLOPES LOOK GOOD. MENTIONED WEARING BOOTIES @ THE NORTH END DUE TO POTENTIAL MUDDY CONDITIONS.	TALKED TO SAMPLING SUPERVISOR ABOUT WEARING BOOTIES. NOT REQUIRED	PAUL J. VOPALENSKY
		☐	☐			
		☐	☐			
		☐	☐			
		☐	☐			
		☐	☐			
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		☐	☐			
		☐	☐			
		☐	☐			

A-6001-937 (REV 3)

Weather
41° overcast
NNE 3mph
65% humidity

0655 FTB-1 207-A-5 filled
0700 FTB-2 207-A-14 filled
0756 On site 207 A Retention Basin
0800 Prejob Earl Pritchard
0839 Sampling A-9
0850 Sampling A-8
0900 Sampling FS-22
0908 Sampling A-15
0918 FS-29
0932 FS28
~~FS27~~
0937 A-5
0944 FS-27
0957 FS-24
0957 FXR-1 (FS-24)
1005 A-3
1012 FS-26
1017 A-13
1023 FS-25
1029 A-12
1035 FS-23
1041 A-6
1041 A-6 DUP 1
1051 A-7
1057 FS-21
1103 A-2
1112 A-4
1117 A-10 Split
1125 A-20
1133 A-19
1138 A-14

1143 A-18
1148 A-17
1153 A-16
1158 A-11
1204 A-1
1209 FS-32
1214 FS-31
1219 FS-30

Left site

A-20
residual basin Material in hole during sampling

NAME	TITLE
K. Patterson	NCO Sampler
B. Briggs	NCO Sampler
Pawz Vopalensky	SAFETY S&GRP
Tim Oliver	Akana - IQRPE
Brett M Barnes	EP
Jon McKibben	ECO
Mitch Boyd	EP
Tim Mullen	Ecology
KEN LARSON	RCT CH
EARL PRICHARD	DIRECTOR
Seamus Hanley	RCT
B. J. HAMMER	
W. WISE.	
F. HALL	

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		**TIME** 0655	
LOCATION 207-A-5 -- FTB 1	**LOGBOOK NO./PAGE** HNF-N-507-30		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** N/A	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A)	☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A)	☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** F.M. Hall/CHPRC

GEL **F15-049-011**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR2	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-012**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR3	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX N/A

SAMPLE MATRIX DESCRIPTION ☐ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☑ OTHER SAND

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER (N/A)

FIELD COMMENTS (N/A)

SUPPORT PERSONNEL (N/A)

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** N/A

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY ~~F.M. Hall/CHPRC~~ B.E. Briggs CHPRC | BeBriggs | NOV 12 2015
PRINT NAME | SIGN NAME | DATE

INDEPENDENT REVIEW PRINT NAME | SIGN NAME | DATE

PRINTED BY SALYNCH ON 08/13/2015 09:14 FSR ID = FSR4694 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0700
LOCATION 207-A-14 -- FTB 2	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH (N/A) ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-035

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV6	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-036

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV7	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☐ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☑ OTHER SAND

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER (N/A)

FIELD COMMENTS (N/A)

SUPPORT PERSONNEL (N/A)

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY PRINT NAME B.E. Briggs CHPRC SIGN NAME BeBriggs DATE NOV 1 2 2015

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:13 FSR ID = FSR4708 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0839
LOCATION 207-A-9	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-021

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT2	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-022

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT3	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY PRINT NAME B.E. Briggs CHPRC SIGN NAME BeBriggs DATE NOV 1 2 2015

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:14 FSR ID = FSR4702 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0850
LOCATION 207-A-8	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A **ORIGINAL**	WELL ID N/A ACTUAL DEPTH 0-6in ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-019

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT0	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-020

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT1	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs CHPRC NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	B. Briggs	NOV 1 2 2015
INDEPENDENT REVIEW			

PRINTED BY SALYNCH ON 08/13/2015 09:14 FSR ID = FSR4701 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	**PAGE** 1 **OF** 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	**TIME** 0900
LOCATION 207-A-CELL 1 -- SAMP2 (FS-22)	**LOGBOOK NO./PAGE** HNF-N-507 30
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A **ACTUAL DEPTH** 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** F.M. Hall/CHPRC

GEL F15-049-051

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX2	5 / 40mL / aGs	B0521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-052

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX3	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs CHPRC NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 1 2 2015 (DATE)

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:15 FSR ID = FSR4716 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r8

WORKORDER #					
SAMPLER	FRANK HALL	DATE	11/12/15	PAGE	1 of 1
SITE ID	~~[illegible]~~ JLH	TURNAROUND	Standard	DISPOSAL	By Lab or Return to Client
EDD FORMAT	11/17/15				
PURCHASE ORDER					
BILL TO COMPANY					
INVOICE ATTN TO					
ADDRESS					
CITY / STATE / ZIP					
PHONE					
FAX					
E-MAIL					

PROJECT NAME	100-EA LSRB Mediation
PROJECT No.	
COMPANY NAME	Ecology
SEND REPORT TO	North Smith-Jackson
ADDRESS	3100 Port of Benton Blvd
CITY / STATE / ZIP	Richland, WA 99354
PHONE	
FAX	
E-MAIL	

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC
	A-9	SO	11/12/15	0839	6		
	A-8	↓	↓	0850	6		
	A-FS-22	↓	↓	0900	6		

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:

QC PACKAGE (check below)	
	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	Frank Hall	FRANK HALL	11-12-15	0927
RECEIVED BY	Tim Mulling	Tim Mulling	11-12-15	0927
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0908
LOCATION 207-A-15	LOGBOOK NO./PAGE HNF-N-507 30 0PB 11-12-15
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-037

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV8	5 / 40mL / aGs	B0159IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-038

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV9	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs CHPRC NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY PRINT NAME B.E. Briggs CHPRC SIGN NAME BeBriggs DATE NOV 1 2 2015

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:13 FSR ID = FSR4709 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		**TIME** ~~NOV 1 2 2015~~ 0908 bb 11.12.15	
LOCATION 207-A-15 -- DUP 2	**LOGBOOK NO./PAGE** HNF-N-507 30		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** P.M. Hall/CHPRC

GEL **F15-049-039**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW0	5 / 40mL / aGs	B0159IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-040**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW1	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

FIELD OBSERVATIONS

~~**WEATHER**~~

FIELD COMMENTS See logbook

B.E. Briggs
CHPRC
NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY PRINT NAME B.E. Briggs CHPRC SIGN NAME B.E. Briggs DATE NOV 1 2 2015

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:13 FSR ID = FSR4710 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0918
LOCATION 207-A-CELL 3 -- SAMP3 FS-29	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-065

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY6	5 / 40mL / aGs	B0159IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-066

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY7	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See logbook

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY PRINT NAME B.E. Briggs CHPRC SIGN NAME B.E. Briggs DATE NOV 1 2 2015

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:15 FSR ID = FSR4723 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0932
LOCATION 207-A-CELL 3 -- SAMP2 FS-28	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-063

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY4	5 / 40mL / aGs	B0159 IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-064

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY5	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook BB 11-12-15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY PRINT NAME B.E. Briggs CHPRC SIGN NAME BeBriggs DATE NOV 1 2 2015

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:15 FSR ID = FSR4722 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0937
LOCATION 207-A-5	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A **ORIGINAL**	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-009

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR0	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-010

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR1	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs CHPRC NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 1 2 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

PRINTED BY SALYNCH ON 08/13/2015 09:14 FSR ID = FSR4693 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0944
LOCATION 207-A-CELL 3 -- SAMP1 FS-27	LOGBOOK NO./PAGE HNF-N-507 301
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-061

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY2	5 / 40mL / aGs	801521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-062

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY3	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs CHPRC NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 1 2 2015
INDEPENDENT REVIEW			

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0957
LOCATION 207-A-CELL 2 -- SAMP1 FS-24 (FXR-1)	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-055

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX6	5 / 40mL / aGs	B0152NB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-056

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX7	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☐ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☑ OTHER Sand

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BE Briggs	NOV 1 2 2015
INDEPENDENT REVIEW			

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 0957
LOCATION 207-A -- FXR 1 (207-A-CELL2-SAMP 1)F5-24	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH (N/A) ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 5 TOTAL NUMBER OF CHAINS 1 COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-069

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32J00	5 / 40mL / aGs	B0152 1VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☐ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☑ OTHER Sand

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs CHPRC NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC B.E. Briggs CHPRC B.E. Briggs NOV 1 2 2015

PRINT NAME SIGN NAME DATE

INDEPENDENT REVIEW

PRINT NAME SIGN NAME DATE

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		**TIME** 1005	
LOCATION 207-A-3	**LOGBOOK NO./PAGE** HNF-N-507 30		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** 0-6" ☐ft ☐m	
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A) ☐ft ☐m		

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** F.M. Hall/CHPRC

GEL **F15-049-005**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP6	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-006**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP7	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 1 2 2015
INDEPENDENT REVIEW			

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		TIME 1012	
LOCATION 207-A-CELL 2 -- SAMP3 (FS-26)	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-059

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY0	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-060

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY1	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs
CHPRC
NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	Be Briggs	NOV 1 2 2015
INDEPENDENT REVIEW			

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		**TIME** 1017	
LOCATION 207-A-13	**LOGBOOK NO./PAGE** HNF-N-507 301		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** F.M. Hall/CHPRC

GEL **F15-049-033**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV4	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-034**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV5	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

B.E. Briggs
CHPRC
NOV 1 2 2015

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 1 2 2015
INDEPENDENT REVIEW			

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 12 2015
SAF NO.(S) F15-049	TIME 1023
LOCATION 207-A-CELL 2 -- SAMP2 FS-25	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-057

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX8	5 / 40mL / aGs	B0152NB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-058

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX9	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook
bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 12 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 1029
LOCATION 207-A-12	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-031

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV2	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-032

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV3	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 1 2 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

PRINTED BY SALYNCH ON 08/13/2015 09:13 FSR ID = FSR4706 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 1035
LOCATION 207-A-CELL 1 -- SAMP3 FS-23	LOGBOOK NO./PAGE HNF-N- 507 30
WELL NAME N/A ORIGINAL	WELL ID N/A ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-053

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX4	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-054

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX5	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 1 2 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

PRINTED BY SALYNCH ON 08/13/2015 09:15 FSR ID = FSR4717 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE 1 OF 1
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	TIME 1041
LOCATION 207-A-6	LOGBOOK NO./PAGE HNF-N-507 30
WELL NAME N/A **ORIGINAL**	WELL ID N/A ACTUAL DEPTH ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-013

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR4	5 / 40mL / aGs	~~B152~~ bR 1.12.15 B0152 | VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-014

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR5	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 1 2 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

PRINTED BY SALYNCH ON 08/13/2015 09:14 FSR ID = FSR4695 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		TIME 1041	
LOCATION 207-A-6 -- DUP 1	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A **ORIGINAL**	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m
SAMPLES COLLECTED			
TOTAL NUMBER OF BOTTLES 6	TOTAL NUMBER OF CHAINS 2	COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-015

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR6	5 / 40mL / aGs	B015221VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-016

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR7	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook
bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

RECORDED BY — PRINT NAME: B.E. Briggs CHPRC — SIGN NAME: BeBriggs — DATE: NOV 1 2 2015

INDEPENDENT REVIEW — PRINT NAME: — SIGN NAME: — DATE:

PRINTED BY SALYNCH ON 08/13/2015 09:14 FSR ID = FSR4699 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		**TIME** 1051	
LOCATION 207-A-7	**LOGBOOK NO./PAGE** HNF-N-507 30		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** F.M. Hall/CHPRC

GEL **F15-049-017**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR8	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-018**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HR9	1 / 250mL / aG	042279	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BE Briggs	NOV 12 2015
INDEPENDENT REVIEW			

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		TIME 1057	
LOCATION 207-A-CELL 1 -- SAMP1 (FS-21)	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m
SAMPLES COLLECTED			
TOTAL NUMBER OF BOTTLES 6	TOTAL NUMBER OF CHAINS 2	COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-049

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX0	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-050

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HX1	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 1 2 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		TIME 1103	
LOCATION 207-A-2	LOGBOOK NO./PAGE HNF-N-501 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-003

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP4	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-004

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP5	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook
bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY — PRINT NAME: B.E. Briggs CHPRC — SIGN NAME: Be Briggs — DATE: NOV 12 2015

INDEPENDENT REVIEW — PRINT NAME: — SIGN NAME: — DATE:

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		TIME 1112	
LOCATION 207-A-4	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6" ☐ft ☐m	
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m		

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-007

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP8	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-008

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP9	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook
bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 1 2 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 2	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		**TIME** 1117	
LOCATION 207-A-10 -- SPT	**LOGBOOK NO./PAGE** HNF-N-50730		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** 0-6" ☐ft ☐m	
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A) ☐ft ☐m		
SAMPLES COLLECTED			
TOTAL NUMBER OF BOTTLES 12	**TOTAL NUMBER OF CHAINS** 4	**COLLECTOR** F.M. Hall/CHPRC	

GEL **F15-049-025**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT6	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-026**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT7	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

TASL **F15-049-027**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT8	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

TASL **F15-049-028**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT9	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil	**PAGE** 2 **OF** 2
	DATE NOV 1 2 2015
SAF NO.(S) F15-049	**TIME** 1117
LOCATION 207-A-10 -- SPT	**LOGBOOK NO./PAGE** HNF-N-507 30
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A **ACTUAL DEPTH** 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 **TOTAL NUMBER OF CHAINS** 4 **COLLECTOR** F.M. Hall/CHPRC

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER See Logbook

FIELD COMMENTS bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 1 2 2015
INDEPENDENT REVIEW			

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		TIME 1125	
LOCATION 207-A-20	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-067

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY8	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-068

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HY9	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

Residual basin material in hole during sampling.

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook 11.12.15 bb

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 12 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		TIME 1133	
LOCATION 207-A-19	LOGBOOK NO./PAGE HNF-N-50730		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6" ☐ft ☐m	
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m		
SAMPLES COLLECTED			
TOTAL NUMBER OF BOTTLES 6	TOTAL NUMBER OF CHAINS 2	COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-047

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW8	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-048

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW9	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook
bb 11/12/15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 12 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		TIME 1138	
LOCATION 207-A-~~10~~14 DJ 11-9-15	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-023

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT4	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-024

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HT5	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook 11.12.15 bb

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 12 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S)	207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE	1 OF 1
		DATE	NOV 12 2015
SAF NO.(S)	F15-049	TIME	1143
LOCATION	207-A-18	LOGBOOK NO./PAGE	HNF-N-507 30
WELL NAME	N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs)	(N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs)	(N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-045

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW6	5 / 40mL / aGs	B0152NB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-046

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW7	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook 11.12.15 bb

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY — PRINT NAME: B.E. Briggs CHPRC — SIGN NAME: BeBriggs — DATE: NOV 12 2015

INDEPENDENT REVIEW — PRINT NAME: — SIGN NAME: — DATE:

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FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		TIME 1148	
LOCATION 207-A-17	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-043

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW4	5 / 40mL / aGs	B01521V13	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-044

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW5	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook 11.12.15 bb

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY PRINT NAME B.E. Briggs CHPRC SIGN NAME BeBriggs DATE NOV 12 2015

INDEPENDENT REVIEW PRINT NAME SIGN NAME DATE

PRINTED BY SALYNCH ON 08/13/2015 09:13 FSR ID = FSR4712 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		**TIME** 1153	
LOCATION 207-A-16	**LOGBOOK NO./PAGE** HNF-N-507 30		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** 0-6" ☐ft ☐m	
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A) ☐ft ☐m		

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** F.M. Hall/CHPRC

GEL **F15-049-041**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW2	5 / 40mL / aGs	B015221VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-042**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HW3	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook 11-12-15 bb

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 12 2015
INDEPENDENT REVIEW			

PRINTED BY SALYNCH ON 08/13/2015 09:13 FSR ID = FSR4711 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 12 2015	
SAF NO.(S) F15-049		TIME 1158	
LOCATION 207-A-11	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A)		☐ft ☐m
SAMPLES COLLECTED			
TOTAL NUMBER OF BOTTLES 6	TOTAL NUMBER OF CHAINS 2	COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-029

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV0	5 / 40mL / aGs	B0521BV	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-030

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HV1	1 / 250mL / aG	047219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook 11.12.15 bh

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY — PRINT NAME: B.E. Briggs CHPRC — SIGN NAME: BeBriggs — DATE: NOV 12 2015

INDEPENDENT REVIEW — PRINT NAME — SIGN NAME — DATE

PRINTED BY SALYNCH ON 08/13/2015 09:12 FSR ID = FSR4705 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**PAGE** 1 **OF** 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		**TIME** 1204	
LOCATION 207-A-1	**LOGBOOK NO./PAGE** HNF-N-507 30		
WELL NAME N/A **ORIGINAL**	**WELL ID** N/A	**ACTUAL DEPTH** 0-6"	☐ft ☐m
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** (N/A)		☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** F.M. Hall/CHPRC

GEL **F15-049-001**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP2	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL **F15-049-002**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32HP3	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX N/A

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

N/A

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook 66 11/12/15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO **BLUE CARD NO** N/A

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 1 2 2015
INDEPENDENT REVIEW			

PRINTED BY SALYNCH ON 08/13/2015 09:12 FSR ID = FSR4692 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		TIME 1209	
LOCATION 207-A-STOCKPILE3 FS-32	LOGBOOK NO./PAGE HNF-N- 507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6" ☐ft ☐m	
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m		

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-084

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32J15	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-085

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32J16	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX N/A

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

N/A

FIELD OBSERVATIONS

WEATHER See Logbook

FIELD COMMENTS 11.12.15 bb

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO N/A

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 1 2 2015
INDEPENDENT REVIEW			

PRINTED BY SALYNCH ON 11/09/2015 14:24 FSR ID = FSR9283 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) 207-A South Retention Basin (S-2-7) Closure Plan - Soil		PAGE 1 OF 1	
		DATE NOV 1 2 2015	
SAF NO.(S) F15-049		TIME 1214	
LOCATION 207-A-STOCKPILE2 FS-31	LOGBOOK NO./PAGE HNF-N-507 30		
WELL NAME N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6" ☐ft ☐m	
BOTTOM OF CASING (bgs) (N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) (N/A) ☐ft ☐m		
SAMPLES COLLECTED			
TOTAL NUMBER OF BOTTLES 6	TOTAL NUMBER OF CHAINS 2	COLLECTOR F.M. Hall/CHPRC	

GEL F15-049-082

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32J13	5 / 40mL / aGs	B0152IVB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-083

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32J14	1 / 250mL / aG	042219	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS

See Logbook
bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	B.E. Briggs CHPRC	BeBriggs	NOV 1 2 2015
INDEPENDENT REVIEW			

PRINTED BY SALYNCH ON 11/09/2015 14:23 FSR ID = FSR9282 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S)	207-A South Retention Basin (S-2-7) Closure Plan - Soil	PAGE	1 OF 1
		DATE	NOV 12 2015
SAF NO.(S)	F15-049	TIME	1219
LOCATION	207-A-STOCKPILE1 FS-30	LOGBOOK NO./PAGE	HNF-N-507 30
WELL NAME	N/A ORIGINAL	WELL ID N/A	ACTUAL DEPTH 0-6" ☐ft ☐m
BOTTOM OF CASING (bgs)	(N/A) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs)	(N/A) ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 6 TOTAL NUMBER OF CHAINS 2 COLLECTOR F.M. Hall/CHPRC

GEL F15-049-080

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32J11	5 / 40mL / aGs	B01521VB	Frozen/Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

GEL F15-049-081

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B32J12	1 / 250mL / aG	041678	Cool <=6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☐ 222-S ☐ MO-413 ☐ MO-745 ☐ 6269 ☑ OTHER

CONTAINER/DRUM/TOTE/BOX (N/A)

SAMPLE MATRIX DESCRIPTION ☑ SOIL ☐ SLUDGE ☐ RESIN ☐ GAC ☐ FILTER PAPER ☐ OTHER

FURTHER SAMPLE MATRIX EXPLANATION/DESCRIPTION [NOTE ANY ODOR, COLOR, TEXTURE (E.G., SLIMY, OILY, GRANULAR, ETC.)]

(N/A)

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS See Logbook bb 11.12.15

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☐ YES ☑ NO BLUE CARD NO (N/A)

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY B.E. Briggs CHPRC (PRINT NAME) BeBriggs (SIGN NAME) NOV 12 2015 (DATE)

INDEPENDENT REVIEW (PRINT NAME) (SIGN NAME) (DATE)

PRINTED BY SALYNCH ON 11/09/2015 14:23 FSR ID = FSR9281 TRVL NUM = TRVL-15-142 A-6004-701 (REV 4)

Appendix F

Sample Results Summary

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F1 Sample Results Summary

Table F-1 presents a summary of sample results.

Table F-1. Sample Results Summary

		Volatile Analysis		Methylene chloride	Acetone	Semi-volatile		m,p-cresol	o-cresol
		SDG 385607	SDG 385608	µg/kg	µg/kg	SDG 385607	SDG 385608	µg/kg	µg/kg
Location	Type	Sample #	Sample #	U flagged unless otherwise noted		Sample #	Sample #	U flagged unless otherwise noted	
207-A-1	Grid		B32HP2	1.82	3.42		B32HP3	103	103
207-A-2	Grid		B32HP4	1.65	3.09		B32HP5	109	109
207-A-3	Grid	B32HP6		1.79	3.36	B32HP7		108	108
207-A-4	Grid		B32HP8	1.63	3.06		B32HP9	104	104
207-A-5	Grid	B32HR0		1.72	3.22	B32HR1		108	108
207-A-6	Grid	B32HR4		1.87	3.5	B32HR5		106	106
207-A-6Dup	Dup		B32HR6	1.72	3.22		B32HR7	105	105
207-A-7	Grid		B32HR8	1.74	3.27		B32HR9	105	105
207-A-8	Grid	B32HT0		1.72	3.23	B32HT1		108	108
207-A-9	Grid	B32HT2		1.7	3.18	B32HT3		113	113
207-A-10	Grid		B32HT6	1.67	3.12		B32HT7	104	104
207-A-10SPL	Split	B32HT9		1.3	5.5	B32HT8		69	34
207-A-11	Grid		B32HV0	1.45	2.72		B32HV1	106	106
207-A-12	Grid	B32HV2		1.68	3.15	B32HV3		112	112
207-A-13	Grid	B32HV4		1.65	3.09	B32HV5		105	105
207-A-14	Grid		B32HT4	1.67	3.14		B32HT5	104	104
207-A-15	Grid	B32HV8		1.65	3.09	B32HV9		108	108
207-A-15Dup	Dup	B32HW0		1.64	3.08	B32HW1		108	108
207-A-16	Grid	B32HW2		6.73J	4.04	B32HW3		104	104
207-A-17	Grid		B32HW4	1.65	3.1		B32HW5	104	104
207-A-18	Grid		B32HW6	1.74	3.26		B32HW7	104	104
207-A-19	Grid		B32HW8	1.63	3.05		B32HW9	103	103
207-A-20	Grid		B32HY8	1.46	2.74		B32HY9	103	103
FS-22	Focus	B32HX2		1.63	3.05	B32HX3		110	110
FS-29	Focus		B32HY6	1.64	3.07		B32HY7	108	108
FS-28	Focus	B32HY4		1.7	3.19	B32HY5		107	107
FS-27	Focus	B32HY2		1.59	2.98	B32HY3		111	111
FS-24	Focus	B32HX6		1.82	3.41	B32HX7		111	111
FS-26	Focus	B32HY0		1.71	3.21	B32HY1		115	115
FS-25	Focus	B32HX8		1.71	3.2	B32HX9		108	108
FS-23	Focus	B32HX4		1.76	3.31	B32HX5		111	111
FS-21	Focus		B32HX0	1.56	2.92		B32HX1	105	105
FS-32	Focus		B32J15	1.34	2.5		B32J16	105	105
FS-31	Focus	B32J13		1.84	3.45	B32J14		105	105
FS-30	Focus		B32J11	1.41	2.64		B32J12	104	104
FXR	QC		B32J00	2.22	4.17				
FTB	QC	B32HV6		2.23J	3.41	B32HV7		99.9	99.9
FTB	QC	B32HR2		1.86	3.49	B32HR3		99.9	99.9

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Appendix G

Analytical Report from Sample Batch 385607, GEL Laboratories, Rev. 1, January 21, 2016

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GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

December 07, 2015

Mr. Scot Fitzgerald
CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Re: CHPRC SAF F15-049
Work Order: 385607
SDG: GEL385607

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 14, 2015. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

Sarah Edwards for
Heather Shaffer
Project Manager

Purchase Order: 303792 8H
Chain of Custody: F15-049-005, F15-049-006, F15-049-009, F15-049-010, F15-049-011, F15-049-012, F15-049-013, F15-049-014, F15-049-019, F15-049-020, F15-049-021, F15-049-022, F15-049-031, F15-049-032, F15-049-033, F15-049-034, F15-049-035, F15-049-036, F15-049-037, F15-049-038, F15-049-039, F15-049-040, F15-049-041, F15-049-042, F15-049-051, F15-049-052, F15-049-053, F15-049-054, F15-049-055, F15-049-056, F15-049-057, F15-049-058, F15-049-059, F15-049-060, F15-049-061, F15-049-062, F15-049-063, F15-049-064, F15-049-082 and F15-049-083
Enclosures

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Case Narrative

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F15-049
SDG: GEL385607

December 07, 2015

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on November 14, 2015, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative and DER.

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
385607001	B32HT0
385607002	B32HX2
385607003	B32HW0
385607004	B32HY4
385607005	B32HX4
385607006	B32HR0
385607007	B32HV8
385607008	B32HV2
385607009	B32HX8
385607010	B32HR4
385607011	B32HX6
385607012	B32HW2
385607013	B32HP6
385607014	B32HY2
385607015	B32HT2
385607016	B32HY0
385607017	B32HV4
385607018	B32HV6
385607019	B32HR2
385607020	B32J13
385607021	B32HT1
385607022	B32HX3

385607023	B32HW1
385607024	B32HY5
385607025	B32HX5
385607026	B32HR1
385607027	B32HV9
385607028	B32HV3
385607029	B32HX9
385607030	B32HR5
385607031	B32HX7
385607032	B32HW3
385607033	B32HP7
385607034	B32HY3
385607035	B32HT3
385607036	B32HY1
385607037	B32HV5
385607038	B32HV7
385607039	B32HR3
385607040	B32J14

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: GC/MS Semivolatile and GC/MS Volatile.

This package, to the best of my knowledge, is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

Sarah Edwards for
Heather Shaffer
Project Manager

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR16-125
REV NUM	0
DATE INITIATED	12/9/2015

SAMPLE EVENT INFORMATION

SAF NUM(S)	F15-049
OPERABLE UNIT(S)	
PROJECT(S)	WASTE&FUELS
SAMPLE EVENT TITLE(S)	207-A South Retention Basin
LABORATORY	GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B32HW1
SAMPLE MATRIX	SOIL
COLLECTION DATE	11/12/2015 - 11/12/2015
SDG NUM	GEL385607

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Chain of Custody Issue
DESCRIPTION	COC F15-049-040, SAMPLE B32HW1. Final "Received By" information is missing.

DISPOSITION

DESCRIPTION	DOCUMENT AND CLOSE
JUSTIFICATION	DOCUMENT AND CLOSE
	Submitted by: Gayelyn Gibson/CHPRC Date: 11/18/15 Accepted by: Kirsten Killand/CHPRC Date: 12/09/15

Chain of Custody and Supporting Documentation

631bs

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-019	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-8 GW5-498	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT0	SOIL	NOV 12 2015	0850	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	NOV 13 2015 1100	RECEIVED BY/STORED IN L.D. Wall CHPRC	NOV 13 2015 1100
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	
RELINQUISHED BY/REMOVED FROM FX		RECEIVED BY/STORED IN	11-14-15 0830
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS
TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4701 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-8

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HTO	K	28.77	33.65	4.88
B32HTO	L	28.89	34.10	5.21
B32HTO	M	28.86	33.00	4.14
B32HTO	N	28.74	33.90	5.16
B32HTO	P	28.79	34.08	5.29

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-051	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-CELL 1 -- SAMP2 (FS-22)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: 6005-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 61317		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX2	SOIL	NOV 12 2015	0900	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1100
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN: M. Gustafson	DATE/TIME: 11-14-15 0830
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4716 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A - CELL 1 Sample 2 FS-22

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
	K	28.46	33.72	5.26
	L	28.48	31.61	3.13
	M	28.62	33.50	4.88
	N	28.68	33.97	5.29
	P	28.60	34.00	5.40

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-049-039	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H; AIR QUALITY: ☐	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-15 -- DUP 2	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 60137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359	

385207

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW0	SOIL	NOV 1 2 2015	0908	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	NOV 1 2 2015 1430	RECEIVED BY/STORED IN: SSU-1	NOV 1 2 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	NOV 1 3 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	NOV 1 3 2015 1100
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	NOV 1 3 2015 1400	RECEIVED BY/STORED IN: FEDEX	
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:	11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4710 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-15 Dup.

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HW0	K	28.38	32.74	4.36
B32HW0	L	28.39	33.80	5.41
B32HW0	M	~~28.88~~ 28.88 initials	33.96	5.08
B32HW0	N	29.10	34.24	5.14
B32HW0	P	28.97	34.04	5.07

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-063	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-CELL 3 -- SAMP2 FS-28	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GW5-498	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Frozen/Cool <-7C and >-20C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY4	SOIL	NOV 12 2015	0932	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1100	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN M. Gaston	DATE/TIME 11/14/15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4722 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A - CELL 3 - Sample 2 (FS-28)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HY4	K	28.42	33.31	4.89
	L	28.97 ~~29 bottle~~	33.76	4.79
	M	29.16	33.46	4.30
	N	28.84	33.92	5.08
B32HY4	P	28.49	33.26	4.77

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-053	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-CELL 1 -- SAMP3 (FS-23)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-498	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX4	SOIL	NOV 12 2015	1035	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1100	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FY	DATE/TIME	RECEIVED BY/STORED IN M. Kaster	DATE/TIME 11-14-15 0530	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4717 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A - CELL 1 - SAMPLE 3 (FS-23)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HX4	K	28.26	33.23	4.97
	L	28.31	32.95	4.64
	M	28.31	33.37	5.06
	N	28.38	33.25	4.87
B32HX4	P	28.56	33.33	4.77

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-009	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-5	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-498	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 61137		BILL OF LADING/AIR BILL NO. 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR0	SOIL	NOV 12 2015	0937	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME 1430 NOV 12 2015	RECEIVED BY/STORED IN SSU-1	DATE/TIME 1430 NOV 12 2015
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1100	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1100
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11/14/15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4693 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-5

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HR0	K	28.63	33.78	5.15
	L	29.12	33.92	4.80
	M	28.70	33.95	5.25
	N	28.84	33.77	4.93
B32HR0	P	29.25	34.42	5.17

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-037	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-15	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: 6605-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 60137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV8	SOIL	NOV 12 2015	0908	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	NOV 13 2015 1100
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:	11-14-15 0830
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:	
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:	
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:	

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4709 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-15

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HV8	K	28.35	33.46	5.11
B32HV8	L	28.45	33.62	5.17
B32HV8	M	28.45	33.80	5.35
B32HV8	N	28.41	33.42	5.01
B32HV8	P	28.17	33.32	5.15

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-031	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-12	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385207

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV2	SOIL	NOV 12 2015	1029	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM: L.D. Wall	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: FX	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11/17/15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4706 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207- A -1Z

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HV2	K	29.02	33.97	4.95
	L	28.96	33.87	4.91
	M	28.88	33.63	4.75
	N	28.99	34.23	5.24
B32HV2	P	28.87	33.69	4.82

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-057	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-CELL 2 -- SAMP2 (FS-25)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX8	SOIL	NOV 12 2015	1023	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1100
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FX	DATE/TIME:	RECEIVED BY/STORED IN: M. Gustlow	DATE/TIME: 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4719 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207- A - CELL 2 sample 2 (FS-25)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HX8	K	28.62	33.52	4.90
	L	28.42	33.18	4.76
	M	28.81	34.01	5.20
	N	28.65	33.25	4.60
B32HX8	P	28.59	33.69	5.10

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-013	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-6	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-498	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR4	SOIL	NOV 12 2015	1041	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1100	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1100
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4695 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-6

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HR4	K	28.44	32.81	4.37
	L	28.59	33.45	4.86
	M	28.44	32.87	4.43
	N	28.46	33.02	4.56
B32HR4	P	28.31	33.01	4.70

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-055	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-CELL 2 -- SAMP1 (FS-24)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX6	SOIL	NOV 12 2015	0957	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1470	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1472	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall	DATE/TIME: NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM: L.D. Wall	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: CHPRC	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4718 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-CELL2-Sample1 (FS-24)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HX6	K	28.35	33.21	4.86
	L	28.58	32.05	3.47
	M	28.78	34.59	5.81
	N	28.77	34.87	~~6.10~~ 11/12/15 6.10
B32HX6	P	28.73	35.56	6.83

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-041	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-16	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-490	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5050		

385207

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Frozen/Cool <-7C and >-20C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW2	SOIL	NOV 12 2015	1153	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1010	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1010	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN M. Kinsler	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4711 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-16

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HW2	K	28.42	33.32	4.90
	L	28.45	33.47	5.02
	M	28.66	32.49	3.83
	N	28.49	33.46	4.97
B32HW2	P	28.46	32.19	3.73

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-005	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-3	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 60137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

38Se07

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP6	SOIL	NOV 12 2015	1005	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC — DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1 — DATE/TIME: NOV 12 2015 1430	TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages. (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM: SSU-1 — DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall — DATE/TIME: NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM: L.D. Wall — DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX — DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: FX — DATE/TIME:	RECEIVED BY/STORED IN: — DATE/TIME: 1114-150330	
RELINQUISHED BY/REMOVED FROM: — DATE/TIME:	RECEIVED BY/STORED IN: — DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: — DATE/TIME:	RECEIVED BY/STORED IN: — DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: — DATE/TIME:	RECEIVED BY/STORED IN: — DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4697 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-3

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HP6	K	28.96	33.78	4.82
	L	28.74	33.76	5.02
	M	28.61	33.60	4.99
	N	28.92	33.62	4.70
B32HP6	P	28.95	34.12	5.17

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-061	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-CELL 3 -- SAMP1 (FS-27)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-498	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 60137		BILL OF LADING/AIR BILL NO. 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Frozen/Cool <-7C and >-20C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY2	SOIL	NOV 12 2015	0944	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1100	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN CHPRC	DATE/TIME	
RELINQUISHED BY/REMOVED FROM CHPRC	DATE/TIME	RECEIVED BY/STORED IN FEDEX	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4721 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-CELL3 sample 1 (FS-27)

Sampler Initials and Date:

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HY2	K	28.86	34.11	5.25
	L	28.58	33.69	5.11
	M	28.54	33.73	5.23
	N	28.44	33.43	4.99
B32HY2	P	28.68	33.92	5.24

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-021	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-9	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT2	SOIL	NOV 12 2015	0839	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1100
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN: M Kirsten	DATE/TIME: 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4702 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-9

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HT2	K	28.89	32.89	4.00
B32HT2	L	28.45	34.27	5.82
B32HT2	M	29.15	34.51	5.36
B32HT2	N	28.50	34.01	5.51
B32HT2	P	28.94	34.17	5.23.

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-059	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-CELL 2 -- SAMP3 (LFS-26)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY0	SOIL	NOV 12 2015	1012	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: FX	DATE/TIME:	RECEIVED BY/STORED IN: M. Kuehn	DATE/TIME: 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4720 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A - CELL 2 - Sample 3 (FS-26)

Sampler Initials and Date:

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HY0	K	28.58	33.74	5.16
	L	28.35	33.41	5.06
	M	28.26	33.41	5.15
	N	28.82	33.75	4.93
B32HY0	P	28.88	33.67	4.79

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-033	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-13	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: 6W5-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

385607

MATRIX*
A=Air
DL=Drum
Liquids
DS=Drum
Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV4	SOIL	NOV 12 2015	1017	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1100	
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: FP	DATE/TIME:	RECEIVED BY/STORED IN: M. Gustafson	DATE/TIME: 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4707 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-13

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HV4	K	28.66	33.80	5.14
	L	28.87	33.48	4.61
	M	28.81	33.21	4.40
	N	28.99	33.36	4.37
B32HV4	P	28.77	33.24 ~~33.36~~ AP 11/12/15	4.47

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-035	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-14 -- FTB 2	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-498	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: (N/A)	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5359		

388207

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV6	SOIL	NOV 1 2 2015	0700	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 1 2 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 1 2 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 1 3 2015 1100	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 1 3 2015 1100
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 1 3 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FX	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4708 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: FTB-2

Sampler Initials and Date: F.M.H. NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HV6	K	28.91	33.09	4.18
B32HV6	L	28.96	33.13	4.17
B32HV6	M	28.64	33.09	4.45
B32HV6	N	28.53	32.89	4.36
B32HV6	P	28.40	32.73	4.33

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 63165			F15-049-011	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-5 -- FTB 1	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GW5-498	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH N/A	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5359		

388607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Frozen/Cool <-7C and >-20C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR2	SOIL	NOV 1 2 2015	0655	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 1 2 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 1 2 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 1 3 2015 1100	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 1 3 2015 1100
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 1 3 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4694 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: FTB-1 / 207-A-5

Sampler Initials and Date: FM. HALL 11/12/15

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HR2	K	28.41	33.82	5.41
B32HR2	L	29.06	33.39	4.33
B32HR2	M	28.42	32.82	4.40
B32HR2	N	28.33	32.35	4.02
B32HR2	P	28.98	32.95	3.97

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-082	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-STOCKPILE2 (FS-31)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-490	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 61317		BILL OF LADING/AIR BILL NO. 7749 7611 5050		

385207

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Frozen/Cool <-7C and >-20C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32J13	SOIL	NOV 12 2015	1214	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1010	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/9/2015 FSR ID = FSR9282 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-STOCKPILE 2 (FS-31)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32J13	K	28.33	34.35	6.02
	L	28.34	32.83	4.49
	M	28.41	34.60	6.19
	N	28.55	34.39	5.84
B32J13	P	28.39	34.58	6.19

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-020	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-8	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 60137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT1	SOIL	NOV 12 2015	0850	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME NOV 13 2015 1200
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN MLG	DATE/TIME 11/14/15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4701 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-052	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-CELL 1 -- SAMP2 (FS-22)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX3	SOIL	NOV 12 2015	0900	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4716 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-040	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-15 -- DUP 2	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW1	SOIL	NOV 12 2015	0908	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1400	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1400	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4710 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-064	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-CELL 3 -- SAMP2 FS-28	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO.: GUS-458	FIELD LOGBOOK NO.: HNF-N-50730	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 4959		

388607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY5	SOIL	NOV 12 2015	0932	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1200	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4722 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-054	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-CELL 1 -- SAMP3 (FS-23)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 60137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX5	SOIL	NOV 12 2015	1035	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1420	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1420	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11/14/15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4717 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-038	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-15	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV9	SOIL	NOV 12 2015	0908	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1410	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1410	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FP	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4709 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-010	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-5	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR1	SOIL	NOV 12 2015	0937	J

388607

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1440	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1440	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN M Anslow	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4693 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-032	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-12	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV3	SOIL	NOV 12 2015	1029	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN 11-14	DATE/TIME 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4706 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-058	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-CELL 2 -- SAMP2 (FS-25)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX9	SOIL	NOV 1 2 2015	1023	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 1 2 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 1 2 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 1 3 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 1 3 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 1 3 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4719 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-014	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-6	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 61317		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*
A=Air
DL=Drum
Liquids
DS=Drum
Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR5	SOIL	NOV 12 2015	1041	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN 11-14-15 0830	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4695 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-056	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-CELL 2 -- SAMP1 (FS-24)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX7	SOIL	NOV 12 2015	0957	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4718 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-042	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-16	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW3	SOIL	NOV 12 2015	1153	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 1330	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4711 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-006	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-3	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GOS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP7	SOIL	NOV 12 2015	1005	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4697 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-062	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-CELL 3 -- SAMP1 (FS-27)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY3	SOIL	NOV 12 2015	0944	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4721 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-022	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-9	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT3	SOIL	NOV 12 2015	0839	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-17-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4702 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-060	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-CELL 2 -- SAMP3 (FS-26)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY1	SOIL	NOV 12 2015	1012	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1410	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1410	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN Matthew Mitchell	DATE/TIME 111475 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4720 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-034	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-13	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV5	SOIL	NOV 12 2015	1017	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1410	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN M. Gaslow	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4707 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-036	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-14 -- FTB 2	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. 6WS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH (N/A)	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385607

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV7	SOIL	NOV 1 2 2015	0700	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 1 2 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 1 2 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 1 3 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 1 3 2015 1200
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 1 3 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 **FSR ID = FSR4708** **TRVL NUM = TRVL-15-142** A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-012	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-5 -- FTB 1	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-458	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: N/A	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 4959		

385207

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR3	SOIL	NOV 12 2015	0655	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 MD	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 MD	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1200	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11/14/15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4694 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-083	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-STOCKPILE2 (FS-31)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-458	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 4959		

385607

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32J14	SOIL	NOV 12 2015	1214	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	NOV 13 2015 1200	RECEIVED BY/STORED IN: L.D. Wall CHPRC	NOV 13 2015 1200
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	
RELINQUISHED BY/REMOVED FROM: FX		RECEIVED BY/STORED IN:	11-14-15 0830
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/9/2015 FSR ID = FSR9282 TRVL NUM = TRVL-15-142

A-6003-618 (REV 2)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	SDG/AR/COC/Work Order:
Received By: MK	Date Received: 11-14-15

Suspected Hazard Information	Yes	No	
COC/Samples marked as radioactive?		✓	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Classified Radioactive II or III by RSO?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts):
COC/Samples marked containing PCBs?		✓	If yes, Were swipes taken of sample containers < action levels?
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	
Shipped as a DOT Hazardous?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Samples identified as Foreign Soil?		✓	Hazard Class Shipped: UN#:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 1C 2C
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 140920244932 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.	✓			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 8749 7611 5359 1C 4959 2C 5050 1C

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials CS Date 11/16/15 Page 1 of 1 GL-CHL-SR-001 Rev 2

Data Review Qualifier Definitions

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 07−DEC−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol−condensation product	Y	Organics	Semi−Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (0rganics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely preformed
T	Programmed	Spike and/or spike duplicate sample recovery is outside control limits.	Y	Organics		GC/MS only
W	Manual	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Y	Inorganics		No GFAA in house.
B	Programmed	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 07−DEC−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
UX	Manual	Gamma Spectroscopy−−Uncertain identification	Y	Radiological		

Laboratory Certifications

List of current GEL Certifications as of 07 December 2015

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC000122013−10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013−10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC000122013−10
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−15−10
Utah NELAP	SC000122015−19
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL385607
Work Order #: 385607

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 5035/8260C
Prep Method:	SW846 5035
Analytical Batch Number:	1525430
Prep Batch Number:	1525429

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
385607001	B32HT0
385607002	B32HX2
385607003	B32HW0
385607004	B32HY4
385607005	B32HX4
385607006	B32HR0
385607007	B32HV8
385607008	B32HV2
385607009	B32HX8
385607010	B32HR4
385607011	B32HX6
385607012	B32HW2
385607013	B32HP6
385607014	B32HY2
385607015	B32HT2
385607016	B32HY0
385607017	B32HV4
385607018	B32HV6
385607019	B32HR2
385607020	B32J13
1203438748	Method Blank (MB)
1203438749	Laboratory Control Sample (LCS)
1203438750	385607001(B32HT0) Post Spike (PS)
1203438751	385607001(B32HT0) Post Spike Duplicate (PSD)
1203445882	Method Blank (MB)
1203445883	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 21.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries, in samples (See Below) were outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported.

Sample	Analyte	Value
385607015 (B32HT2)	1,2-Dichloroethane-d4	129* (81%-124%)
385607018 (B32HV6)	1,2-Dichloroethane-d4	125* (81%-124%)

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 385607001 (B32HT0) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement
The matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Samples 385607006 (B32HR0), 385607012 (B32HW2), 385607015 (B32HT2) and 385607018 (B32HV6) were re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis. The re-analyses confirmed/and or passed and were reported.

Miscellaneous Information

Data Exception (DER) Documentation
A data exception report (DER) 1473004 was generated for samples 385607015 (B32HT2) and 385607018 (B32HV6) in this SDG/batch.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this SDG.

Additional Comments
Additional comments were not required for this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA3.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL385607 GEL Work Order: 385607

The Qualifiers in this report are defined as follows:

J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated

T Spike and/or spike duplicate sample recovery is outside control limits.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.

RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 09 DEC 2015 **Title: Data Validator**

Sample Data Summary

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 08:50**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607001**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**5.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT0**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 08:44**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 08:50**	**Aliquot:**	**4.9 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J606.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.23	ug/kg	3.23	10.8
75-09-2	Methylene chloride	U	1.72	ug/kg	1.72	5.38

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607002**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**8.9**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX2**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 09:14**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:00**	**Aliquot:**	**5.4 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J607.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.05	ug/kg	3.05	10.2
75-09-2	Methylene chloride	U	1.63	ug/kg	1.63	5.08

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:08**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607003**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW0**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 09:45**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:08**	**Aliquot:**	**5.1 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J608.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.08	ug/kg	3.08	10.3
75-09-2	Methylene chloride	U	1.64	ug/kg	1.64	5.13

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:32**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607004**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 10:15**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:32**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J609.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.19	ug/kg	3.19	10.6
75-09-2	Methylene chloride	U	1.70	ug/kg	1.70	5.32

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607005**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 10:46**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:35**	**Aliquot:**	**4.9 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J610.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.31	ug/kg	3.31	11.0
75-09-2	Methylene chloride	U	1.76	ug/kg	1.76	5.51

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:37**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607006**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR0**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/22/2015 12:10**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:37**	**Aliquot:**	**4.9 g**	**Final Volume:**	**5 mL**
Data File:	**112215V3\3J707.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.22	ug/kg	3.22	10.7
75-09-2	Methylene chloride	U	1.72	ug/kg	1.72	5.36

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:08**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607007**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**6.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV8**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 11:46**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:08**	**Aliquot:**	**5.2 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J612.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.09	ug/kg	3.09	10.3
75-09-2	Methylene chloride	U	1.65	ug/kg	1.65	5.14

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:29**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607008**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV2**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 12:17**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:29**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J613.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.15	ug/kg	3.15	10.5
75-09-2	Methylene chloride	U	1.68	ug/kg	1.68	5.24

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:23**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607009**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX8**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 12:48**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:23**	**Aliquot:**	**4.9 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J614.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.20	ug/kg	3.20	10.7
75-09-2	Methylene chloride	U	1.71	ug/kg	1.71	5.34

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:41**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607010**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 13:18**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:41**	**Aliquot:**	**4.4 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J615.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.50	ug/kg	3.50	11.7
75-09-2	Methylene chloride	U	1.87	ug/kg	1.87	5.83

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:57**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607011**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**10.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX6**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 13:49**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:57**	**Aliquot:**	**4.9 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J616.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.41	ug/kg	3.41	11.4
75-09-2	Methylene chloride	U	1.82	ug/kg	1.82	5.69

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 11:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607012**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW2**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/22/2015 12:41**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:53**	**Aliquot:**	**3.8 g**	**Final Volume:**	**5 mL**
Data File:	**112215V3\3J708.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	4.04	ug/kg	4.04	13.5
75-09-2	Methylene chloride	J	2.97	ug/kg	2.15	6.73

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:05**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607013**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**6.9**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP6**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 14:50**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:05**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J618.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.36	ug/kg	3.36	11.2
75-09-2	Methylene chloride	U	1.79	ug/kg	1.79	5.60

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:44**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607014**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY2**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 15:20**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:44**	**Aliquot:**	**5.2 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J619.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	2.98	ug/kg	2.98	9.94
75-09-2	Methylene chloride	U	1.59	ug/kg	1.59	4.97

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 08:39**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607015**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**9.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT2**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/22/2015 13:11**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 08:39**	**Aliquot:**	**5.2 g**	**Final Volume:**	**5 mL**
Data File:	**112215V3\3J709.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.18	ug/kg	3.18	10.6
75-09-2	Methylene chloride	U	1.70	ug/kg	1.70	5.30

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:12**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607016**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**10.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY0**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 16:21**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:12**	**Aliquot:**	**5.2 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J621.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.21	ug/kg	3.21	10.7
75-09-2	Methylene chloride	U	1.71	ug/kg	1.71	5.35

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:17**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607017**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/21/2015 16:52**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:17**	**Aliquot:**	**5.1 g**	**Final Volume:**	**5 mL**
Data File:	**112115V3\3J622.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.09	ug/kg	3.09	10.3
75-09-2	Methylene chloride	U	1.65	ug/kg	1.65	5.15

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 07:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607018**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**0**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV6**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/22/2015 15:13**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 07:00**	**Aliquot:**	**4.4 g**	**Final Volume:**	**5 mL**
Data File:	**112215V3\3J713.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.41	ug/kg	3.41	11.4
75-09-2	Methylene chloride	J	2.23	ug/kg	1.82	5.68

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 06:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607019**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR2**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/22/2015 14:12**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 06:55**	**Aliquot:**	**4.3 g**	**Final Volume:**	**5 mL**
Data File:	**112215V3\3J711.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.49	ug/kg	3.49	11.6
75-09-2	Methylene chloride	U	1.86	ug/kg	1.86	5.82

GEL Laboratories LLC

Report Date: December 9, 2015

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607020**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32J13**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1525430**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/22/2015 14:43**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 12:14**	**Aliquot:**	**4.5 g**	**Final Volume:**	**5 mL**
Data File:	**112215V3\3J712.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.45	ug/kg	3.45	11.5
75-09-2	Methylene chloride	U	1.84	ug/kg	1.84	5.75

Quality Control Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 9, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **385607**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1525430										
QC1203438749 LCS										
Acetone	250			232	ug/kg		93	(70%-130%)	CDS1	11/21/15 07:13
Methylene chloride	50.0			48.8	ug/kg		98	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			51.1	ug/L		102	(81%-124%)		
**Bromofluorobenzene	50.0			50.4	ug/L		101	(70%-130%)		
**Toluene-d8	50.0			49.7	ug/L		99	(81%-120%)		
QC1203445883 LCS										
Acetone	250			239	ug/kg		95	(70%-130%)		11/22/15 10:09
Methylene chloride	50.0			49.3	ug/kg		99	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			52.1	ug/L		104	(81%-124%)		
**Bromofluorobenzene	50.0			48.2	ug/L		96	(70%-130%)		
**Toluene-d8	50.0			50.4	ug/L		101	(81%-120%)		
QC1203438748 MB										
Acetone			U	3.00	ug/kg					11/21/15 08:14
Methylene chloride			U	1.60	ug/kg					
**1,2-Dichloroethane-d4	50.0			54.9	ug/L		110	(81%-124%)		
**Bromofluorobenzene	50.0			46.8	ug/L		94	(70%-130%)		
**Toluene-d8	50.0			49.7	ug/L		99	(81%-120%)		
QC1203445882 MB										
Acetone			U	3.00	ug/kg					11/22/15 11:40
Methylene chloride			U	1.60	ug/kg					
**1,2-Dichloroethane-d4	50.0			54.5	ug/L		109	(81%-124%)		

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385607**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1525430											
**Bromofluorobenzene	50.0				46.7	ug/L		93	(70%-130%)		
**Toluene-d8	50.0				52.4	ug/L		105	(81%-120%)	CDS1	11/22/15 11:40
QC1203438750 385607001 PS											
Acetone	250	U	0.00		273	ug/L		109	(70%-130%)		11/21/15 17:22
Methylene chloride	50.0	U	0.00		43.0	ug/L		86	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		59.4		53.4	ug/L		107	(81%-124%)		
**Bromofluorobenzene	50.0		46.8		45.8	ug/L		92	(70%-130%)		
**Toluene-d8	50.0		53.5		51.2	ug/L		102	(81%-120%)		
QC1203438751 385607001 PSD											
Acetone	250	U	0.00		258	ug/L	6	103	(0%-20%)		11/21/15 17:53
Methylene chloride	50.0	U	0.00		43.7	ug/L	2	87	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		59.4		52.9	ug/L		106	(81%-124%)		
**Bromofluorobenzene	50.0		46.8		47.2	ug/L		94	(70%-130%)		
**Toluene-d8	50.0		53.5		50.7	ug/L		101	(81%-120%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

GEL LABORATORIES LLC

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QC Summary

Workorder: **385607**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

o Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC

Report Date: December 9 2015

Volatile

Surrogate Recovery Report

SDG Number: GEL385607

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203438749	LCS for batch 1525429	102	99	101
1203438748	MB for batch 1525429	110	99	94
385607001	B32HT0	119	107	94
385607002	B32HX2	119	110	100
385607003	B32HW0	118	112	95
385607004	B32HY4	117	110	96
385607005	B32HX4	115	110	94
385607007	B32HV8	119	113	100
385607008	B32HV2	121	115	97
385607009	B32HX8	120	109	91
385607010	B32HR4	119	114	91
385607011	B32HX6	116	113	92
385607013	B32HP6	113	110	92
385607014	B32HY2	120	115	93
385607016	B32HY0	114	108	94
385607017	B32HV4	115	110	91
1203438750	B32HT0PS	107	102	92
1203438751	B32HT0PSD	106	101	94
1203445883	LCS for batch 1525429	104	101	96
1203445882	MB for batch 1525429	109	105	93
385607006	B32HR0	119	105	94
385607012	B32HW2	118	105	93
385607015	B32HT2	129 *	120	108
385607019	B32HR2	118	111	95

DCED4 = 1,2-Dichloroethane-d4 (81%-124%)
TOL = Toluene-d8 (81%-120%)
BFB = Bromofluorobenzene (70%-130%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

GEL Laboratories LLC

Report Date: December 9 2015

Volatile

Surrogate Recovery Report

SDG Number: GEL385607

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
385607020	B32J13	120	112	97
385607018	B32HV6	125 *	118	100

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(81%-124%)
TOL	= Toluene-d8	(81%-120%)
BFB	= Bromofluorobenzene	(70%-130%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Miscellaneous

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1473004
Revision No.:

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
03-DEC-15	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 5035/8260C	Solid	CPRC
Batch ID:	**Sample Numbers:**		
1525430	See Below		

Potentially affected work order(s)(SDG): 385607(GEL385607)

Application Issues:

Failed Yield for Surrogates

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Yield for Surrogates: 385607 015,018	1. Surrogate recoveries, in samples (See Below) were outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported. 385607015 (B32HT2) 1,2-Dichloroethane-d4 [129* (81%-124%)]. 385607018 (B32HV6) 1,2-Dichloroethane-d4 [125* (81%-124%)].

Originator's Name:
Crystal Stacey 03-DEC-15

Data Validator/Group Leader:
Kelle Bellamy 09-DEC-15

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL385607
Work Order #: 385607

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	8270_SVOA_GCMS
Prep Method:	SW846 3541
Analytical Batch Number:	1524491
Prep Batch Number:	1524489

Sample Analysis

The following samples were analyzed using the analytical protocol as established in 8270_SVOA_GCMS:

Sample ID	Client ID
385607021	B32HT1
385607022	B32HX3
385607023	B32HW1
385607024	B32HY5
385607025	B32HX5
385607026	B32HR1
385607027	B32HV9
385607028	B32HV3
385607029	B32HX9
385607030	B32HR5
385607031	B32HX7
385607032	B32HW3
385607033	B32HP7
385607034	B32HY3
385607035	B32HT3
385607036	B32HY1
385607037	B32HV5
385607038	B32HV7
385607039	B32HR3
385607040	B32J14
1203436450	Method Blank (MB)
1203436451	Laboratory Control Sample (LCS)
1203436452	385607021(B32HT1) Matrix Spike (MS)
1203436453	385607021(B32HT1) Matrix Spike Duplicate (MSD)

Samples 385607 021, 022, 023, 024, 025, 026, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039 and 040 in this SDG were analyzed on a "dry weight corrected" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 35.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 385607021 (B32HT1) was selected for analysis as the matrix spike and matrix spike duplicate.

Spike Recovery Statement
The MS and MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD values between the MS and MSD met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
The initial analysis for samples 385607037 (B32HV5), 385607038 (B32HV7), 385607039 (B32HR3) and 385607040 (B32J14) was outside of the DFTPP TUNE window. The samples were re-analyzed within a new DFTPP TUNE window. The data results are reported from the re-analysis.

Miscellaneous Information:

Data Exception (DER) Documentation
A data exception report (DER) was not generated for sample(s) in this SDG in this batch. A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) were not required for the samples in this SDG for this batch.

Additional Comments
Additional comments were not required for the SDG associated samples in this batch.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD5.I	Agilent 6890/5973 GC/MS w/ 7683 Autosampler	HP6890/HP5973	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL385607 GEL Work Order: 385607

The Qualifiers in this report are defined as follows:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 07 DEC 2015 **Title: Data Validator**

Sample Data Summary

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 08:50**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607021**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT1**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 17:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.02 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2309.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	108	ug/kg	108	361
95-48-7	o-Cresol	U	108	ug/kg	108	361

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607022**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**9.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 19:24**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2312.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	110	ug/kg	110	367
95-48-7	o-Cresol	U	110	ug/kg	110	367

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:08**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607023**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW1**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 19:55**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.02 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2313.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	108	ug/kg	108	361
95-48-7	o-Cresol	U	108	ug/kg	108	361

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:32**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607024**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**6.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 20:26**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2314.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	107	ug/kg	107	357
95-48-7	o-Cresol	U	107	ug/kg	107	357

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607025**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**9.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 20:58**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2315.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	111	ug/kg	111	369
95-48-7	o-Cresol	U	111	ug/kg	111	369

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
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Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:37**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607026**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR1**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 21:29**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2316.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	108	ug/kg	108	361
95-48-7	o-Cresol	U	108	ug/kg	108	361

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:08**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607027**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV9**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 22:01**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2317.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	108	ug/kg	108	360
95-48-7	o-Cresol	U	108	ug/kg	108	360

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:29**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607028**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**11**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 22:33**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2318.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	112	ug/kg	112	374
95-48-7	o-Cresol	U	112	ug/kg	112	374

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:23**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607029**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX9**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 23:05**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2319.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	108	ug/kg	108	359
95-48-7	o-Cresol	U	108	ug/kg	108	359

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:41**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607030**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**5.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/23/2015 23:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	106	ug/kg	106	352
95-48-7	o-Cresol	U	106	ug/kg	106	352

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:57**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607031**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**9.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX7**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 00:09**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.02 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	111	ug/kg	111	369
95-48-7	o-Cresol	U	111	ug/kg	111	369

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 11:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607032**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 00:41**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2322.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	104	ug/kg	104	346
95-48-7	o-Cresol	U	104	ug/kg	104	346

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:05**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607033**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP7**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 01:12**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2323.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	108	ug/kg	108	359
95-48-7	o-Cresol	U	108	ug/kg	108	359

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
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Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 09:44**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607034**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**10**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 01:44**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.05 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2324.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	111	ug/kg	111	370
95-48-7	o-Cresol	U	111	ug/kg	111	370

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
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Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 08:39**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607035**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**11.9**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 02:16**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2325.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	113	ug/kg	113	378
95-48-7	o-Cresol	U	113	ug/kg	113	378

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:12**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607036**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**12.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY1**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 02:48**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112315.B\s5k2326.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	115	ug/kg	115	382
95-48-7	o-Cresol	U	115	ug/kg	115	382

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 10:17**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607037**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 12:12**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**s112415.B\s5k2405.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	105	ug/kg	105	349
95-48-7	o-Cresol	U	105	ug/kg	105	349

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 07:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607038**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**0**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV7**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 12:43**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.05 g**	**Final Volume:**	**1 mL**
Data File:	**s112415.B\s5k2406.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	99.9	ug/kg	99.9	333
95-48-7	o-Cresol	U	99.9	ug/kg	99.9	333

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 06:55**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607039**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**0**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 13:13**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.05 g**	**Final Volume:**	**1 mL**
Data File:	**s112415.B\s5k2407.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	99.9	ug/kg	99.9	333
95-48-7	o-Cresol	U	99.9	ug/kg	99.9	333

GEL Laboratories LLC

Report Date: November 24, 2015

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385607**	**Date Collected:**	**11/12/2015 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**385607040**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32J14**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1524491**	**Inst:**	**MSD5.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 13:44**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2015 10:14**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112415.B\s5k2408.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	105	ug/kg	105	351
95-48-7	o-Cresol	U	105	ug/kg	105	351

Quality Control Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 24, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **385607**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1524491											
QC1203436451 LCS											
m,p-Cresols	1670				1350	ug/kg		81	(41%-127%)	JMB3	11/23/15 17:21
o-Cresol	1670				1240	ug/kg		75	(40%-111%)		
**2,4,6-Tribromophenol	3330				3180	ug/kg		95	(12%-129%)		
**2-Fluorobiphenyl	1670				1190	ug/kg		72	(15%-110%)		
**2-Fluorophenol	3330				2330	ug/kg		70	(10%-115%)		
**Nitrobenzene-d5	1670				1260	ug/kg		76	(13%-112%)		
**Phenol-d5	3330				2340	ug/kg		70	(15%-117%)		
**p-Terphenyl-d14	1670				1370	ug/kg		82	(24%-141%)		
QC1203436450 MB											
m,p-Cresols				U	99.8	ug/kg					11/23/15 16:50
o-Cresol				U	99.8	ug/kg					
**2,4,6-Tribromophenol	3330				2960	ug/kg		89	(12%-129%)		
**2-Fluorobiphenyl	1660				1420	ug/kg		85	(15%-110%)		
**2-Fluorophenol	3330				2530	ug/kg		76	(10%-115%)		
**Nitrobenzene-d5	1660				1560	ug/kg		93	(13%-112%)		
**Phenol-d5	3330				2640	ug/kg		79	(15%-117%)		
**p-Terphenyl-d14	1660				1400	ug/kg		84	(24%-141%)		
QC1203436452 385607021 MS											
m,p-Cresols	1800	U	108		1590	ug/kg		88	(29%-130%)		11/23/15 18:22
o-Cresol	1800	U	108		1480	ug/kg		82	(28%-114%)		
**2,4,6-Tribromophenol	3610		3360		3650	ug/kg		101	(12%-129%)		

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 385607

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1524491											
**2-Fluorobiphenyl	1800		1490		1420	ug/kg		79	(15%-110%)	JMB3	11/23/15 18:22
**2-Fluorophenol	3610		2580		2710	ug/kg		75	(10%-115%)		
**Nitrobenzene-d5	1800		1580		1500	ug/kg		83	(13%-112%)		
**Phenol-d5	3610		2710		2760	ug/kg		76	(15%-117%)		
**p-Terphenyl-d14	1800		1570		1660	ug/kg		92	(24%-141%)		
QC1203436453 385607021 MSD											
m,p-Cresols	1810	U	108		1650	ug/kg	4	91	(0%-30%)		11/23/15 18:53
o-Cresol	1810	U	108		1510	ug/kg	2	84	(0%-30%)		
**2,4,6-Tribromophenol	3610		3360		3780	ug/kg		105	(12%-129%)		
**2-Fluorobiphenyl	1810		1490		1500	ug/kg		83	(15%-110%)		
**2-Fluorophenol	3610		2580		2820	ug/kg		78	(10%-115%)		
**Nitrobenzene-d5	1810		1580		1590	ug/kg		88	(13%-112%)		
**Phenol-d5	3610		2710		2870	ug/kg		79	(15%-117%)		
**p-Terphenyl-d14	1810		1570		1680	ug/kg		93	(24%-141%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 385607

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
o	Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC

Report Date: November 24 2015

Semi-Volatile

Surrogate Recovery Report

SDG Number: GEL385607

Matrix Type: SOLID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203436450	MB for batch 1524489	76	79	93	85	89	84
1203436451	LCS for batch 1524489	70	70	76	72	95	82
385607021	B32HT1	71	75	87	83	93	87
1203436452	B32HT1MS	75	76	83	79	101	92
1203436453	B32HT1MSD	78	79	88	83	105	93
385607022	B32HX3	69	72	85	77	87	87
385607023	B32HW1	77	80	92	83	97	78
385607024	B32HY5	69	73	86	81	93	80
385607025	B32HX5	70	73	85	77	89	76
385607026	B32HR1	67	69	77	73	83	79
385607027	B32HV9	77	79	89	83	99	77
385607028	B32HV3	65	69	78	74	82	78
385607029	B32HX9	76	78	94	85	90	84
385607030	B32HR5	74	79	92	84	89	80
385607031	B32HX7	71	75	84	77	84	81
385607032	B32HW3	73	78	88	84	95	85
385607033	B32HP7	69	73	88	80	79	79
385607034	B32HY3	70	73	83	76	81	90
385607035	B32HT3	69	73	80	75	80	80
385607036	B32HY1	51	54	58	56	71	79
385607037	B32HV5	70	74	87	80	80	86
385607038	B32HV7	70	74	90	85	82	88
385607039	B32HR3	72	76	92	84	83	77
385607040	B32J14	74	76	90	84	91	89

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(10%-115%)
PHL	= Phenol-d5	(15%-117%)
NBZ	= Nitrobenzene-d5	(13%-112%)
FBP	= 2-Fluorobiphenyl	(15%-110%)
TBP	= 2,4,6-Tribromophenol	(12%-129%)
TPH	= p-Terphenyl-d14	(24%-141%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

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Appendix H

Analytical Report from Sample Batch 385608, GEL Laboratories, Rev. 1, January 14, 2016

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GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

January 14, 2016

Mr. Scot Fitzgerald
CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Re: CHPRC SAF F15-049
Work Order: 385608
SDG: GEL385608

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 14, 2015. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Per client P&D, this package was revised to include the missing QC Summary for Volatiles.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: 303792 8H
Chain of Custody: F15-049-001, F15-049-002, F15-049-003, F15-049-004, F15-049-007, F15-049-008, F15-049-015, F15-049-016, F15-049-017, F15-049-018, F15-049-023, F15-049-024, F15-049-025, F15-049-026, F15-049-029, F15-049-030, F15-049-043, F15-049-044, F15-049-045, F15-049-046, F15-049-047, F15-049-048, F15-049-049, F15-049-050, F15-049-065, F15-049-066, F15-049-067, F15-049-068, F15-049-069, F15-049-080, F15-049-081, F15-049-084 and F15-049-085
Enclosures

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Problem and Discrepancy Report

Problem and Discrepancy Report

GEL

SDG GEL385608

01/13/16

The data package has the following issues:

The QC summary section is missing from the VOA analysis report.

Resolution: *Provide correction.*

Lab Response:

The lab has corrected the data package and submitted a revision.

Case Narrative

Per client P&D, this package was revised to include the missing QC Summary for Volatiles.

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F15-049
SDG: GEL385608

January 14, 2016

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on November 14, 2015, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative and DER.

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
385608001	B32J11
385608002	B32J15
385608003	B32HR6
385608004	B32HX0
385608005	B32HR8
385608006	B32HY6
385608007	B32HV0
385608008	B32HP2
385608009	B32HP4
385608010	B32HT6
385608011	B32HT4
385608012	B32HW6
385608013	B32HW8
385608014	B32HP8
385608015	B32HW4
385608016	B32HY8
385608017	B32J00
385608018	B32J12
385608019	B32J16
385608020	B32HR7

385608021	B32HX1
385608022	B32HR9
385608023	B32HY7
385608024	B32HV1
385608025	B32HP3
385608026	B32HP5
385608027	B32HT7
385608028	B32HT5
385608029	B32HW7
385608030	B32HW9
385608031	B32HP9
385608032	B32HW5
385608033	B32HY9

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: GC/MS Semivolatile and GC/MS Volatile.

This package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

Heather Shaffer

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-080	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-STOCKPILE1 (FS-30)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Frozen/Cool <-7C and >-20C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32J11	SOIL	NOV 12 2015	1219	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1010	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN: M. Gustafson	DATE/TIME: 11/14/15 0830
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:
RELINQUISHED BY/REMOVED FROM:	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME:

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

FSR ID = FSR9281 TRVL NUM = TRVL-15-142

A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-STOCKPILE (FS-30)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32J11	K	28.36	33.84	5.48
	L	28.39	34.06	5.67
	M	28.57	34.20	5.63
	N	28.30	33.88	5.58
B32J11	P	28.06	33.82	5.76

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-084	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-STOCKPILE3 (FS-32)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GLOS-490	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 61317		BILL OF LADING/AIR BILL NO. 7749 7611 5056		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32J15	SOIL	NOV 12 2015	1209	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES		
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1010	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN [illegible]	DATE/TIME 11-14-15 0800
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/9/2015

FSR ID = FSR9283

TRVL NUM = TRVL-15-142

A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A - STOCKPILE 3 (FS-32)

Sampler Initials and Date:

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32515	K	28.56	34.65	6.09
	L	28.57	34.70	6.13
	M	28.15	34.46	6.31
	N	28.28	34.36	6.08
B32515	P	28.29	33.79	5.50

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-015	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-6 -- DUP 1	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 16137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050		

3857608

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR6	SOIL	NOV 12 2015	1041	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	NOV 13 2015 1010	RECEIVED BY/STORED IN: L.D. Wall CHPRC	NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	11-14-15 0830
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS
TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4699 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-6 Dup 1

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HR6	K	28.68	33.42	4.74
	L	28.58	33.32	4.74
	M	29.05	33.53	4.48
	N	28.80	33.57	4.77
B32HR6	P	28.90	33.49	4.59

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-049	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-CELL 1 -- SAMP1 (FS-21)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050		

385608

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX0	SOIL	NOV 12 2015	1057	✓

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1010	L.D. Wall CHPRC	NOV 13 2015 1010
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	11-14-15 0830

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4715 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-CELL 1 - Sample 1 (FS-21)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HX0	K	28.63	33.54	4.91
	L	28.73	34.05	5.32
	M	28.60	34.04	5.44
	N	29.18	34.29	5.11
B32HX0	P	28.43	33.12	4.69

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-017	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-7	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GLOS-490	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5050		

3852608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR8	SOIL	NOV 12 2015	1051	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES		
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME 1430 NOV 12 2015	RECEIVED BY/STORED IN SSU-1	DATE/TIME 1430 NOV 12 2015
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1010	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN 11-14-15 0830	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015

FSR ID = FSR4700

TRVL NUM = TRVL-15-142

A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-7

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HR8	K	28.58	33.12	
	L	28.91	33.55	
	M	28.72	33.20	
	N	28.91	33.59	
B32HR8	P	28.08	32.50	

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-065	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-CELL 3 -- SAMP3 (FS-29)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. 6605-490	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5050		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY6	SOIL	NOV 12 2015	0918	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPR — DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1 — DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM SSU-1 — DATE/TIME NOV 13 2015 1010	RECEIVED BY/STORED IN L.D. Wall CHPRC — DATE/TIME NOV 13 2015 1010	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC — DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX — DATE/TIME	
RELINQUISHED BY/REMOVED FROM FX — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4723 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-CELL 3 - Sample 3 (FS-29)

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HY6	K	29.31	34.13	4.82
B32HY6	L	28.89	33.88	4.99
B32HY6	M	28.39	33.60	5.21
B32HY6	N	29.16	34.25	5.09
B32HY6	P	28.77	34.01	5.24

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F15-049-029

PAGE 1 OF 1

CH2MHill Plateau Remediation Company

COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ
SAMPLING LOCATION: 207-A-11	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049
ICE CHEST NO.: 6WS-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050

PRICE CODE: 8H

AIR QUALITY: ☐

DATA TURNAROUND: 30 Days / 30 Days

METHOD OF SHIPMENT: FEDERAL EXPRESS

ORIGINAL

385208

MATRIX*
A=Air
DL=Drum
Liquids
DS=Drum
Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV0	SOIL	NOV 12 2015	1158	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1010	L.D. Wall CHPRC	NOV 13 2015 1010
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	
		M. Barlow	11-14-15 0830

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618 (REV 2)

PRINTED ON 8/13/2015

FSR ID = FSR4705

TRVL NUM = TRVL-15-142

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207- A -11

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HV0	K	28.96	34.49	5.53
	L	28.58	35.16	6.58
	M	28.98	34.70	5.72
	N	28.68	34.42	5.74
B32HV0	P	28.89	34.56	5.67

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-001	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-1	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GLOS-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 61337		BILL OF LADING/AIR BILL NO.: 7749 7611 5050		

385208

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP2	SOIL	NOV 12 2015	1204	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	NOV 13 2015 1010	RECEIVED BY/STORED IN: L.D. Wall CHPRC	NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	
RELINQUISHED BY/REMOVED FROM: FEDEX		RECEIVED BY/STORED IN: M. Kushin	11-14-15 0830
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618 (REV 2)

FSR ID = FSR4692

TRVL NUM = TRVL-15-142

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-1

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HP2	K	28.47	33.01	4.54
	L	28.74	33.63	4.89
	M	28.70	33.20	4.50
	N	28.90	33.94	5.04
B32HP2	P	28.80	33.92	5.12

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-003	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-2	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-490	FIELD LOGBOOK NO.: HNF-N-50730	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050		

3852608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP4	SOIL	NOV 12 2015	1103	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES		
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1010	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FX	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11/17/15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4696 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-2

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HP4	K	28.62	33.52	4.90
	L	28.28	33.57	5.29
	M	28.70	33.56	4.86
	N	28.90	39.41	10.51
B32HP4	P	28.39	~~33.57~~ 32.77	4.38

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-025	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-10 -- SPT	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-490	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5050		

3852608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT6	SOIL	NOV 12 2015	1117	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1010	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4704 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-10 GEL

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HT6	K	28.51	33.88	5.37
	L	28.25	33.08	4.83
	M	28.82	33.56	4.74
	N	28.39	33.50	5.11
B32HT6	P	28.66	33.51	4.85

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-023	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-~~18~~ 14 BD 11-9-15	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: 6005-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050		

385608

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT4	SOIL	NOV 12 2015	1138	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES		
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1010	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FEDEX	DATE/TIME:	RECEIVED BY/STORED IN: N Kinslow	DATE/TIME: 11/14/15-0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4703 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-14

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HT4	K	27.98 ~~28.32~~ AP 11/12/15	33.16	5.18
	L	28.32	33.25	4.93
	M	28.42	33.59	5.17
	N	28.03	32.97	4.94
B32HT4	P	28.79	33.52	4.73

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-045	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-18	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: 6U05-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050		

3852608

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW6	SOIL	NOV 12 2015	1143	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1010	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1010
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FE	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4713 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-18

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HW6	K	28.46	33.47	5.01
	L	28.72	33.81	5.09
	M	28.78	33.66	4.88
	N	28.52	33.29	4.77
B32HW6	P	28.53	33.85	5.32

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-19

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HW8	K	28.16	32.59	4.43
	L	28.59	33.54	4.95
	M	28.34	33.53	5.19
	N	28.54	33.98	5.44
B32HW8	P	28.57	33.85	5.28

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-047	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
				AIR QUALITY ☐	30 Days / 30 Days
SAMPLING LOCATION 207-A-19	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-490	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 5050		

3852608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Frozen/Cool <-7C and >-20C
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	5
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW8	SOIL	NOV 12 2015	1133	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1010	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1010	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4714 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F15-049-007 | PAGE 1 OF 1

COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ
SAMPLING LOCATION: 207-A-4	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049
ICE CHEST NO.: GWS-490	FIELD LOGBOOK NO.: HNF-N-50730	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 16137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050

PRICE CODE: 8H | AIR QUALITY: ☐ | DATA TURNAROUND: 30 Days / 30 Days | METHOD OF SHIPMENT: FEDERAL EXPRESS | ORIGINAL

3857608

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP8	SOIL	NOV 12 2015	1112	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1010	L.D. Wall/CHPRC	NOV 13 2015 1010
L.D. Wall/CHPRC	NOV 13 2015 1400	FEDEX	
n/a		M. Gustavson	11-14-15 0830

SPECIAL INSTRUCTIONS

TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 | FSR ID = FSR4698 | TRVL NUM = TRVL-15-142 | A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-4

Sampler Initials and Date: F.M. Hall/CHPRC NOV 1 2 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HP8	K	28.43	33.69	5.26
	L	28.17	33.16	4.99
	M	28.52	33.56	5.04
	N	28.95	34.05	5.10
B32HP8	P	28.36	33.50	5.14

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

Chemnim Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F15-049-043 | PAGE 1 OF 1

COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ
SAMPLING LOCATION: 207-A-17	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049
ICE CHEST NO.: GWS-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050

PRICE CODE: 8H | AIR QUALITY: ☐ | DATA TURNAROUND: 30 Days / 30 Days | METHOD OF SHIPMENT: FEDERAL EXPRESS | ORIGINAL

385608

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW4	SOIL	NOV 12 2015	1148	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1010	L.D. Wall CHPRC	NOV 13 2015 1010
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	
FEDEX			11-14-15 0830

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 | FSR ID = FSR4712 | TRVL NUM = TRVL-15-142

A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-17

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HW4	K	28.73	34.89	6.16
	L	28.91	33.93	5.02
	M	28.44	33.35	4.91
	N	28.15	32.86	4.71
B32HW4	P	28.58	32.46	3.88

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

Hanford Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F15-049-067 | PAGE 1 OF 1

COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ
SAMPLING LOCATION: 207-A-20	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049
ICE CHEST NO.: GLOS-490	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 5050

PRICE CODE: 8H | AIR QUALITY: ☐ | DATA TURNAROUND: 30 Days / 30 Days | METHOD OF SHIPMENT: FEDERAL EXPRESS | ORIGINAL

385608

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY8	SOIL	NOV 12 2015	1125	✓

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1010	L.D. Wall CHPRC	NOV 13 2015 1010
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	
			11-14-15 0830

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 | FSR ID = FSR4724 | TRVL NUM = TRVL-15-142 | A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-20

Sampler Initials and Date: P.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
Filter ~~B32~~ B32HY8	K	28.68	34.19	5.51
	L	28.64	33.94	5.30
	M	28.68	33.88	5.20
	N	28.99	34.52	5.53
B32HY8	P	28.75	34.34	5.59

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F15-049-069 | PAGE 1 OF 1

COLLECTOR F.M. Hall/CHPRC	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
SAMPLING LOCATION 207-A -- FXR 1 (207-A CELL 2-SAMP 1) FS-24	**PROJECT DESIGNATION** 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**SAF NO.** F15-049
ICE CHEST NO. GOS-498	**FIELD LOGBOOK NO.** HNF-N-507 30	**ACTUAL SAMPLE DEPTH** (N/A)	**COA** 303792
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 6137		**BILL OF LADING/AIR BILL NO.** 7749 7611 5359

PRICE CODE 8H | **DATA TURNAROUND** 30 Days / 30 Days

AIR QUALITY ☐

METHOD OF SHIPMENT FEDERAL EXPRESS

ORIGINAL

385608

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32J00	SOIL	NOV 12 2015	0957	✓

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1100	L.D. Wall CHPRC	NOV 13 2015 1100
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	
			11-14-15 0830

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 8/13/2015 **FSR ID = FSR4725** **TRVL NUM = TRVL-15-142** A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: FXR1 / 207-A-CELL2 Sample / FS-24

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32J00	K	28.50	32.10	3.60
	L	28.76	32.34	3.58
	M	28.82	32.66	3.80
	N	29.24	33.21	3.97
B32J00	P	28.54	32.31	3.77

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 82 IDS

COLLECTOR F.M. Hall/CHPRC	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
SAMPLING LOCATION 207-A-STOCKPILE1 (FS-30)	**PROJECT DESIGNATION** 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**SAF NO.** F15-049
ICE CHEST NO. GWS-458	**FIELD LOGBOOK NO.** HNF-N-507 30	**ACTUAL SAMPLE DEPTH** 0-6"	**COA** 303792
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 61137		**BILL OF LADING/AIR BILL NO.** 7749 7611 4959

F15-049-081 **PAGE 1 OF 1**

PRICE CODE 8H **DATA TURNAROUND** 30 Days / 30 Days

AIR QUALITY ☐

METHOD OF SHIPMENT FEDERAL EXPRESS

ORIGINAL

3852608

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32J12	SOIL	NOV 12 2015	1219	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME NOV 13 2015 1200
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 11/9/2015 **FSR ID = FSR9281** **TRVL NUM = TRVL-15-142** A-6003-618 (REV 2)

Chinook Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F15-049-085 | PAGE 1 OF 1

COLLECTOR F.M. Hall/CHPRC	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
SAMPLING LOCATION 207-A-STOCKPILE3 (FS-32)	**PROJECT DESIGNATION** 207-A South Retention Basin (S-2-7) Closure Plan - Soil		**SAF NO.** F15-049
ICE CHEST NO. GWS-458	**FIELD LOGBOOK NO.** HNF-N-507 30	**ACTUAL SAMPLE DEPTH** 0-6"	**COA** 303792
SHIPPED TO GEL Laboratories, LLC	**OFFSITE PROPERTY NO.** 6137		**BILL OF LADING/AIR BILL NO.** 7749 7611 4959

PRICE CODE 8H | **AIR QUALITY** ☐ | **DATA TURNAROUND** 30 Days / 30 Days | **METHOD OF SHIPMENT** FEDERAL EXPRESS | **ORIGINAL**

385608

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32J16	SOIL	NOV 12 2015	1209	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1200	L.D. Wall CHPRC	NOV 13 2015 1200
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	
		M. Gustowski	11-14-15 0830

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 11/9/2015 **FSR ID = FSR9283** **TRVL NUM = TRVL-15-142**

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-016	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-6 -- DUP 1	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-458	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 4959		

3852608

MATRIX*: A=Air, DL=Drum, Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR7	SOIL	NOV 12 2015	1041	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	NOV 13 2015 1200
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN M. Frank	11-14-15 0830
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618 (REV 2)

PRINTED ON 8/13/2015

FSR ID = FSR4699

TRVL NUM = TRVL-15-142

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-050	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-CELL 1 -- SAMP1 (FS-21)	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-458	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 4959		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HX1	SOIL	NOV 12 2015	1057	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES		
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1430	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1200	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1200
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: FX	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11/14/15 0830
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:

SPECIAL INSTRUCTIONS

TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)};
8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618 (REV 2)

PRINTED ON 8/13/2015 FSR ID = FSR4715 TRVL NUM = TRVL-15-142

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-018	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: 207-A-7	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	
ICE CHEST NO.: 6WS-458	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749 7611 4959		

385608

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HR9	SOIL	NOV 12 2015	1051	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 1200	L.D. Wall CHPRC	NOV 13 2015 1200
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	
			11-14-15 0830

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4700 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 82102			F15-049-066	PAGE 1 OF 1
COLLECTOR F.M. Hall/CH	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-CELL 3 -- SAMP3 (FS-29)	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

388608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY7	SOIL	NOV 12 2015	0918	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1400	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1400	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4723 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-030	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-11	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

3856608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HV1	SOIL	NOV 12 2015	1158	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1480	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1480	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN M. Kirstow	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4705 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-002	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-1	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 60137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP3	SOIL	NOV 12 2015	1204	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FY	DATE/TIME	RECEIVED BY/STORED IN M. Kaelber	DATE/TIME 11/14/15 0530	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4692 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-004	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-2	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

3857608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP5	SOIL	NOV 12 2015	1103	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4696 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

DOE/RL-2016-74, REV. 0
Revision #1 14-JAN-2016
January 14, 2016
Rev 1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-026	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-10 -- SPT	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-50730	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6037		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT7	SOIL	NOV 12 2015	1117	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0832	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4704 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-024	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-~~10~~ 14 11-9-15	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

3856608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT5	SOIL	NOV 12 2015	1138	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN M. Kaslow	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4703 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-046	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-18	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW7	SOIL	NOV 12 2015	1143	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 1-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4713 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-048	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-19	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GW5-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW9	SOIL	NOV 12 2015	1133	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4714 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-008	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-4	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 6137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HP9	SOIL	NOV 12 2015	1112	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1420	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME 11-14-15 0530	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4698 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-044	PAGE 1 OF 1
COLLECTOR: F.M. Hall/CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: 207-A-17	PROJECT DESIGNATION: 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO.: F15-049	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GCS-458	FIELD LOGBOOK NO.: HNF-N-507 30	ACTUAL SAMPLE DEPTH: 0-6"	COA: 303792	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 6137		BILL OF LADING/AIR BILL NO.: 7749761149 59		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HW5	SOIL	NOV 12 2015	1148	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: NOV 12 2015 1420	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: NOV 12 2015 1420	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: NOV 13 2015 1200	RECEIVED BY/STORED IN: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM: L.D. Wall CHPRC	DATE/TIME: NOV 13 2015 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: FEDEX	DATE/TIME:	RECEIVED BY/STORED IN:	DATE/TIME: 11-14-15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4712 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-068	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 207-A-20	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049		
ICE CHEST NO. GWS-458	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 61137		BILL OF LADING/AIR BILL NO. 7749 7611 4959		

385608

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	Cool <=6C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HY9	SOIL	NOV 12 2015	1125	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 (1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 1200	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1200	
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FX	DATE/TIME	RECEIVED BY/STORED IN 11-14-15 0830	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4724 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: OPRC	SDG/AR/COC/Work Order:
Received By: MK	Date Received: 11-14-15

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts):
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 1C 2C
2a	Daily check performed and passed on IR temperature gun?		✓		Temperature Device Serial #: 140902-4932 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.	✓			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7749 7611 5359 1C 4959 2C 5050 1C

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials DS Date 11/16/15 Page 1 of 1 GL-CHL-SR-001 Rev 2

Data Review Qualifier Definitions

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol−condensation product	Y	Organics	Semi−Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (0rganics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely preformed
T	Programmed	Spike and/or spike duplicate sample recovery is outside control limits.	Y	Organics		GC/MS only
W	Manual	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Y	Inorganics		No GFAA in house.
B	Programmed	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 14−JAN−16

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
UX	Manual	Gamma Spectroscopy−−Uncertain identification	Y	Radiological		

Laboratory Certifications

List of current GEL Certifications as of 14 January 2016

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC000122013−10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013−10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC000122013−10
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−15−10
Utah NELAP	SC000122015−19
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL385608
Work Order #: 385608

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 5035/8260C
Prep Method:	SW846 5035
Analytical Batch Number:	1524349
Prep Batch Number:	1524347

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
385608001	B32J11
385608002	B32J15
385608003	B32HR6
385608004	B32HX0
385608005	B32HR8
385608006	B32HY6
385608007	B32HV0
385608008	B32HP2
385608009	B32HP4
385608010	B32HT6
385608011	B32HT4
385608012	B32HW6
385608013	B32HW8
385608014	B32HP8
385608015	B32HW4
385608016	B32HY8
385608017	B32J00
1203436104	Method Blank (MB)
1203436105	Laboratory Control Sample (LCS)
1203436106	385355006(B33M95) Post Spike (PS)
1203436107	385355006(B33M95) Post Spike Duplicate (PSD)
1203438002	Method Blank (MB)
1203438003	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 21.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries, in sample (See Below) was outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported.

Sample	Analyte	Value
385608002 (B32J15)	1,2-Dichloroethane-d4	125* (81%-124%)

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 385355006 (B33M95) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement
The matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated

methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Samples 385608002 (B32J15), 385608006 (B32HY6), 385608010 (B32HT6) and 385608014 (B32HP8) were re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis. The re-analyses confirmed/and or passed and were reported.

Miscellaneous Information

Data Exception (DER) Documentation
A data exception report (DER) 1469295 was generated for sample 385608002 (B32J15) in this SDG/batch.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this SDG.

Additional Comments
Additional comments were not required for this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA3.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL385608 GEL Work Order: 385608

The Qualifiers in this report are defined as follows:

T Spike and/or spike duplicate sample recovery is outside control limits.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.

RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 24 NOV 2015 **Title: Data Validator**

Sample Data Summary

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 12:19**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608001**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32J11**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/18/2015 15:47**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 12:19**	**Aliquot:**	**5.8 g**	**Final Volume:**	**5 mL**
Data File:	**111815V3\3J314.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	2.64	ug/kg	2.64	8.80
75-09-2	Methylene chloride	U	1.41	ug/kg	1.41	4.40

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 12:09**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608002**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32J15**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 09:33**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 12:09**	**Aliquot:**	**6.2 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J407.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	2.50	ug/kg	2.50	8.35
75-09-2	Methylene chloride	U	1.34	ug/kg	1.34	4.17

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 10:41**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608003**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR6**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/18/2015 16:47**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:41**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**111815V3\3J316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.22	ug/kg	3.22	10.7
75-09-2	Methylene chloride	U	1.72	ug/kg	1.72	5.37

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 10:57**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608004**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX0**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/18/2015 17:18**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:57**	**Aliquot:**	**5.4 g**	**Final Volume:**	**5 mL**
Data File:	**111815V3\3J317.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	2.92	ug/kg	2.92	9.74
75-09-2	Methylene chloride	U	1.56	ug/kg	1.56	4.87

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 10:51**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608005**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR8**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/18/2015 17:48**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 10:51**	**Aliquot:**	**4.7 g**	**Final Volume:**	**5 mL**
Data File:	**111815V3\3J318.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.27	ug/kg	3.27	10.9
75-09-2	Methylene chloride	U	1.74	ug/kg	1.74	5.45

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 09:18**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608006**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**6.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY6**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 10:04**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:18**	**Aliquot:**	**5.2 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J408.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.07	ug/kg	3.07	10.2
75-09-2	Methylene chloride	U	1.64	ug/kg	1.64	5.12

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608007**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV0**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/18/2015 18:48**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:58**	**Aliquot:**	**5.7 g**	**Final Volume:**	**5 mL**
Data File:	**111815V3\3J320.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	2.72	ug/kg	2.72	9.06
75-09-2	Methylene chloride	U	1.45	ug/kg	1.45	4.53

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

January 14, 2016 Rev 1

Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 12:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608008**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP2**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/18/2015 19:18**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 12:04**	**Aliquot:**	**4.5 g**	**Final Volume:**	**5 mL**
Data File:	**111815V3\3J321.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.42	ug/kg	3.42	11.4
75-09-2	Methylene chloride	U	1.82	ug/kg	1.82	5.70

GEL Laboratories LLC

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Report Date: November 23, 2015

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Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:03**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608009**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**8.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/18/2015 19:49**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:03**	**Aliquot:**	**5.3 g**	**Final Volume:**	**5 mL**
Data File:	**111815V3\3J322.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.09	ug/kg	3.09	10.3
75-09-2	Methylene chloride	U	1.65	ug/kg	1.65	5.15

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Volatile,
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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:17**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608010**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT6**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 10:34**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:17**	**Aliquot:**	**4.9 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J409.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.12	ug/kg	3.12	10.4
75-09-2	Methylene chloride	U	1.67	ug/kg	1.67	5.21

GEL Laboratories LLC

Volatile,
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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:38**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608011**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 11:04**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:38**	**Aliquot:**	**4.9 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J410.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.14	ug/kg	3.14	10.5
75-09-2	Methylene chloride	U	1.67	ug/kg	1.67	5.23

GEL Laboratories LLC

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Volatile,
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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608012**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW6**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 11:35**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:43**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J411.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.26	ug/kg	3.26	10.9
75-09-2	Methylene chloride	U	1.74	ug/kg	1.74	5.43

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:33**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608013**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**1.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW8**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 12:05**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:33**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J412.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.05	ug/kg	3.05	10.2
75-09-2	Methylene chloride	U	1.63	ug/kg	1.63	5.09

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Volatile,
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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:12**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608014**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP8**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 18:09**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:12**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J424.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.06	ug/kg	3.06	10.2
75-09-2	Methylene chloride	U	1.63	ug/kg	1.63	5.10

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Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:48**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608015**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW4**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 13:06**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:48**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J414.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	3.10	ug/kg	3.10	10.3
75-09-2	Methylene chloride	U	1.65	ug/kg	1.65	5.16

GEL Laboratories LLC

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Volatile,
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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608016**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**2.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY8**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 13:36**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 11:25**	**Aliquot:**	**5.6 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J415.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	2.74	ug/kg	2.74	9.14
75-09-2	Methylene chloride	U	1.46	ug/kg	1.46	4.57

GEL Laboratories LLC

Revision #1 14-JAN-2016

Report Date: November 23, 2015

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Volatile,
Certificate of Analysis
Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 09:57**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608017**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**0**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32J00**	**Method:**	**SW846 5035/8260C**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1524349**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**11/19/2015 14:06**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/12/2015 09:57**	**Aliquot:**	**3.6 g**	**Final Volume:**	**5 mL**
Data File:	**111915V3\3J416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
67-64-1	Acetone	U	4.17	ug/kg	4.17	13.9
75-09-2	Methylene chloride	U	2.22	ug/kg	2.22	6.94

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 23, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **385608**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1524349										
QC1203436105 LCS										
Acetone	250			215	ug/kg		86	(70%-130%)	CDS1	11/18/15 12:15
Methylene chloride	50.0			47.7	ug/kg		95	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			50.4	ug/L		101	(81%-124%)		
**Bromofluorobenzene	50.0			52.0	ug/L		104	(70%-130%)		
**Toluene-d8	50.0			48.2	ug/L		96	(81%-120%)		
QC1203438003 LCS										
Acetone	250			244	ug/kg		97	(70%-130%)		11/19/15 08:02
Methylene chloride	50.0			54.2	ug/kg		108	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			51.0	ug/L		102	(81%-124%)		
**Bromofluorobenzene	50.0			51.5	ug/L		103	(70%-130%)		
**Toluene-d8	50.0			50.3	ug/L		101	(81%-120%)		
QC1203436104 MB										
Acetone			U	3.00	ug/kg					11/18/15 13:15
Methylene chloride			U	1.60	ug/kg					
**1,2-Dichloroethane-d4	50.0			56.6	ug/L		113	(81%-124%)		
**Bromofluorobenzene	50.0			49.0	ug/L		98	(70%-130%)		
**Toluene-d8	50.0			50.4	ug/L		101	(81%-120%)		
QC1203438002 MB										
Acetone			U	3.00	ug/kg					11/19/15 09:03
Methylene chloride			U	1.60	ug/kg					
**1,2-Dichloroethane-d4	50.0			54.7	ug/L		109	(81%-124%)		

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385608**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1524349											
**Bromofluorobenzene	50.0				49.6	ug/L		99	(70%-130%)		
**Toluene-d8	50.0				50.2	ug/L		100	(81%-120%)	CDS1	11/19/15 09:03
QC1203436106 385355006 PS											
Acetone	250	J	6.61		271	ug/L		106	(70%-130%)		11/18/15 20:49
Methylene chloride	50.0	U	0.00		48.1	ug/L		96	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		64.6		50.0	ug/L		100	(81%-124%)		
**Bromofluorobenzene	50.0		57.9		50.0	ug/L		100	(70%-130%)		
**Toluene-d8	50.0		60.2		49.8	ug/L		100	(81%-120%)		
QC1203436107 385355006 PSD											
Acetone	250	J	6.61		240	ug/L	12	93	(0%-20%)		11/18/15 21:20
Methylene chloride	50.0	U	0.00		45.9	ug/L	5	92	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		64.6		49.3	ug/L		99	(81%-124%)		
**Bromofluorobenzene	50.0		57.9		49.6	ug/L		99	(70%-130%)		
**Toluene-d8	50.0		60.2		50.2	ug/L		100	(81%-120%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385608**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

o Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Volatile

Surrogate Recovery Report

SDG Number: GEL385608

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203436105	LCS for batch 1524347	101	96	104
1203436104	MB for batch 1524347	113	101	98
385608001	B32J11	124	119	116
385608003	B32HR6	115	105	98
385608004	B32HX0	110	105	101
385608005	B32HR8	116	110	105
385608007	B32HV0	110	106	103
385608008	B32HP2	114	105	96
385608009	B32HP4	116	110	102
1203436106	B33M95PS	100	100	100
1203436107	B33M95PSD	99	100	99
1203438003	LCS for batch 1524347	102	101	103
1203438002	MB for batch 1524347	109	100	99
385608002	B32J15	125 *	117	113
385608006	B32HY6	114	110	99
385608010	B32HT6	115	106	101
385608011	B32HT4	118	109	104
385608012	B32HW6	115	107	101
385608013	B32HW8	116	109	100
385608015	B32HW4	118	112	103
385608016	B32HY8	119	114	107
385608017	B32J00	110	107	96
385608014	B32HP8	111	106	96

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(81%-124%)
TOL	= Toluene-d8	(81%-120%)
BFB	= Bromofluorobenzene	(70%-130%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Miscellaneous

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1469295
Revision No.:

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
20-NOV-15	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 5035/8260C	Solid	CPRC
Batch ID:	**Sample Numbers:**		
1524349	See Below		

Potentially affected work order(s)(SDG): 385355(GEL385355),385608(GEL385608)

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Failed Yield for Surrogates

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS/MSD, or PS/PSD: QC 1203436107PSD 2. Failed Yield for Surrogates: 385355 006 385608 002	1. The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated. 1203436107 (B33M95PSD) Chlorobenzene [68* (70%-130%)], Styrene [68* (70%-130%)] and Xylenes (total) [68* (70%-130%)]. 2. Surrogate recoveries, in sample (See Below) was outside the acceptance limits. Sample re-analysis confirmed matrix interference. The initial results are reported. 385355006 (B33M95) 1,2-Dichloroethane-d4 [129* (81%-124%)]. Surrogate recoveries, in sample (See Below) was outside the acceptance limits. Sample re-analysis confirmed matrix interference. The re-analysis results are reported. 385608002 (B32J15) 1,2-Dichloroethane-d4 [125* (81%-124%)].

Originator's Name:

Crystal Stacey 20-NOV-15

Data Validator/Group Leader:

Kelle Bellamy 23-NOV-15

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG #: GEL385608
Work Order #: 385608

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	8270_SVOA_GCMS
Prep Method:	SW846 3541
Analytical Batch Number:	1525386
Prep Batch Number:	1525385

Sample Analysis

The following samples were analyzed using the analytical protocol as established in 8270_SVOA_GCMS:

Sample ID	Client ID
385608018	B32J12
385608019	B32J16
385608020	B32HR7
385608021	B32HX1
385608022	B32HR9
385608023	B32HY7
385608024	B32HV1
385608025	B32HP3
385608026	B32HP5
385608027	B32HT7
385608028	B32HT5
385608029	B32HW7
385608030	B32HW9
385608031	B32HP9
385608032	B32HW5
385608033	B32HY9
1203438684	Method Blank (MB)
1203438685	Laboratory Control Sample (LCS)
1203438686	385608018(B32J12) Matrix Spike (MS)
1203438687	385608018(B32J12) Matrix Spike Duplicate (MSD)

Samples 385608 018, 019, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 030, 031, 032 and 033 in this SDG were analyzed on a "dry weight corrected" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 35.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 385608018 (B32J12) was selected for analysis as the matrix spike and matrix spike duplicate.

Spike Recovery Statement
The MS and MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD values between the MS and MSD met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard response for Perylene-d12 was outside of the acceptance criteria for samples 1203438684 (MB) and 1203438685 (LCS). Since Perylene-d12 was not used to quantitate the requested target analytes or surrogates for this batch, the data were not adversely impacted by the failure. The results are reported.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
A data exception report (DER) was not generated for sample(s) in this SDG in this batch. A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) were not required for the samples in this SDG for this batch.

Additional Comments
Additional comments were not required for the SDG associated samples in this batch.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description

MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL385608 GEL Work Order: 385608

The Qualifiers in this report are defined as follows:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 09 DEC 2015 **Title: Data Validator**

Sample Data Summary

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 12:19**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608018**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32J12**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 17:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2418.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	104	ug/kg	104	345
95-48-7	o-Cresol	U	104	ug/kg	104	345

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 12:09**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608019**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32J16**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 19:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2421.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	105	ug/kg	105	349
95-48-7	o-Cresol	U	105	ug/kg	105	349

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 10:41**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608020**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**5.2**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR7**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 19:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.01 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2422.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	105	ug/kg	105	352
95-48-7	o-Cresol	U	105	ug/kg	105	352

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 10:57**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608021**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.9**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HX1**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 20:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2423.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	105	ug/kg	105	350
95-48-7	o-Cresol	U	105	ug/kg	105	350

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 10:51**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608022**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HR9**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 20:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2424.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	105	ug/kg	105	349
95-48-7	o-Cresol	U	105	ug/kg	105	349

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 09:18**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608023**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**7.8**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY7**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 21:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.02 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2425.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	108	ug/kg	108	361
95-48-7	o-Cresol	U	108	ug/kg	108	361

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608024**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**5.6**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HV1**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 21:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2426.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	106	ug/kg	106	352
95-48-7	o-Cresol	U	106	ug/kg	106	352

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 12:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608025**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP3**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 22:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.05 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2427.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	103	ug/kg	103	344
95-48-7	o-Cresol	U	103	ug/kg	103	344

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:03**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608026**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**8.7**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 22:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.02 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2428.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	109	ug/kg	109	365
95-48-7	o-Cresol	U	109	ug/kg	109	365

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:17**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608027**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.5**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT7**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 23:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.02 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2429.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	104	ug/kg	104	345
95-48-7	o-Cresol	U	104	ug/kg	104	345

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:38**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608028**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.4**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HT5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/24/2015 23:54**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2430.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	104	ug/kg	104	348
95-48-7	o-Cresol	U	104	ug/kg	104	348

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608029**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW7**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/25/2015 00:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.02 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2431.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	104	ug/kg	104	348
95-48-7	o-Cresol	U	104	ug/kg	104	348

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:33**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608030**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW9**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/25/2015 00:55**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.04 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2432.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	103	ug/kg	103	343
95-48-7	o-Cresol	U	103	ug/kg	103	343

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:12**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608031**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.1**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HP9**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/25/2015 01:25**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.05 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2433.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	104	ug/kg	104	347
95-48-7	o-Cresol	U	104	ug/kg	104	347

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Report Date: November 25, 2015

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:48**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608032**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**4.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HW5**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/25/2015 01:55**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2434.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	104	ug/kg	104	348
95-48-7	o-Cresol	U	104	ug/kg	104	348

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Sample Summary

SDG Number:	**GEL385608**	**Date Collected:**	**11/12/2015 11:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**385608033**	**Date Received:**	**11/14/2015 08:30**	**%Moisture:**	**3.3**
		Client:	**CPRC001**	**Project:**	**CPRC0F15049**
Client ID:	**B32HY9**	**Method:**	**8270_SVOA_GCMS**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1525386**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/25/2015 02:25**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/24/2015 09:31**	**Aliquot:**	**30 g**	**Final Volume:**	**1 mL**
Data File:	**s112415a.B\s3k2435.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols	U	103	ug/kg	103	345
95-48-7	o-Cresol	U	103	ug/kg	103	345

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 25, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **385608**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1525386											
QC1203438685 LCS											
m,p-Cresols	1670				1440	ug/kg		86	(41%-127%)	JLD1	11/24/15 17:24
o-Cresol	1670				1240	ug/kg		74	(40%-111%)		
**2,4,6-Tribromophenol	3330				2670	ug/kg		80	(12%-129%)		
**2-Fluorobiphenyl	1670				1120	ug/kg		68	(15%-110%)		
**2-Fluorophenol	3330				2460	ug/kg		74	(10%-115%)		
**Nitrobenzene-d5	1670				1180	ug/kg		71	(13%-112%)		
**Phenol-d5	3330				2520	ug/kg		76	(15%-117%)		
**p-Terphenyl-d14	1670				1040	ug/kg		62	(24%-141%)		
QC1203438684 MB											
m,p-Cresols				U	99.9	ug/kg					11/24/15 16:54
o-Cresol				U	99.9	ug/kg					
**2,4,6-Tribromophenol	3330				2420	ug/kg		73	(12%-129%)		
**2-Fluorobiphenyl	1660				1210	ug/kg		72	(15%-110%)		
**2-Fluorophenol	3330				2420	ug/kg		73	(10%-115%)		
**Nitrobenzene-d5	1660				1230	ug/kg		74	(13%-112%)		
**Phenol-d5	3330				2530	ug/kg		76	(15%-117%)		
**p-Terphenyl-d14	1660				1030	ug/kg		62	(24%-141%)		
QC1203438686 385608018 MS											
m,p-Cresols	1730	U	104		1520	ug/kg		88	(29%-130%)		11/24/15 18:24
o-Cresol	1730	U	104		1320	ug/kg		77	(28%-114%)		
**2,4,6-Tribromophenol	3450		3060		2940	ug/kg		85	(12%-129%)		

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385608**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS												
Batch 1525386												
**2-Fluorobiphenyl	1730		1320		1170	ug/kg		68	(15%-110%)	JLD1	11/24/15	18:24
**2-Fluorophenol	3450		2750		2520	ug/kg		73	(10%-115%)			
**Nitrobenzene-d5	1730		1270		1160	ug/kg		67	(13%-112%)			
**Phenol-d5	3450		2770		2600	ug/kg		75	(15%-117%)			
**p-Terphenyl-d14	1730		1450		1590	ug/kg		92	(24%-141%)			
QC1203438687 385608018 MSD												
m,p-Cresols	1730	U	104		1520	ug/kg	0	88	(0%-30%)		11/24/15	18:54
o-Cresol	1730	U	104		1330	ug/kg	0	77	(0%-30%)			
**2,4,6-Tribromophenol	3450		3060		3030	ug/kg		88	(12%-129%)			
**2-Fluorobiphenyl	1730		1320		1160	ug/kg		67	(15%-110%)			
**2-Fluorophenol	3450		2750		2500	ug/kg		72	(10%-115%)			
**Nitrobenzene-d5	1730		1270		1140	ug/kg		66	(13%-112%)			
**Phenol-d5	3450		2770		2570	ug/kg		74	(15%-117%)			
**p-Terphenyl-d14	1730		1450		1610	ug/kg		93	(24%-141%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.

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QC Summary

Workorder: **385608**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
o	Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Semi-Volatile

Surrogate Recovery Report

SDG Number: GEL385608

Matrix Type: SOLID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203438684	MB for batch 1525385	73	76	74	72	73	62
1203438685	LCS for batch 1525385	74	76	71	68	80	62
385608018	B32J12	80	80	74	76	89	84
1203438686	B32J12MS	73	75	67	68	85	92
1203438687	B32J12MSD	72	74	66	67	88	93
385608019	B32J16	89	92	82	84	95	81
385608020	B32HR7	83	87	82	82	91	102
385608021	B32HX1	75	77	73	73	72	91
385608022	B32HR9	80	83	79	79	81	90
385608023	B32HY7	71	74	68	69	72	95
385608024	B32HV1	76	80	75	73	74	93
385608025	B32HP3	74	78	73	74	76	76
385608026	B32HP5	78	82	74	73	77	92
385608027	B32HT7	78	82	78	79	76	89
385608028	B32HT5	76	79	76	76	68	90
385608029	B32HW7	73	77	75	75	66	91
385608030	B32HW9	77	82	78	77	68	95
385608031	B32HP9	79	83	78	78	70	75
385608032	B32HW5	81	86	78	76	75	89
385608033	B32HY9	80	86	80	79	75	87

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(10%-115%)
PHL	= Phenol-d5	(15%-117%)
NBZ	= Nitrobenzene-d5	(13%-112%)
FBP	= 2-Fluorobiphenyl	(15%-110%)
TBP	= 2,4,6-Tribromophenol	(12%-129%)
TPH	= p-Terphenyl-d14	(24%-141%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Appendix I

Analytical Report from Northwest Testing

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-14847-1
TestAmerica Sample Delivery Group: SL2012
Client Project/Site: F15-049

For:
CH2M Hill Plateau Remediation Company
PO BOX 1600, MS H8-41
Richland, Washington 99352

Attn: Mr. Scot Fitzgerald

Authorized for release by:
12/4/2015 12:34:15 PM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Job ID: 160-14847-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
December 4, 2015
Attention: Scot Fitzgerald

SDG	: SL2012
Number of Samples	: 2 samples
Sample Matrix	: Solid
Data Deliverable	: Summary
Date SDG Closed	: November 14, 2015

II. Introduction

On November 14, 2 samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F15-049

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with an LCS/LCS duplicate.

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate flagging unless otherwise noted in the case narrative.

For Anion analysis, samples have been started at a 2x dilution per CHPRC direction. The samples are flagged accordingly with a “D” flag if sample concentration is above the MDL/RL. Non-conformance will be included in the below section only if dilution is greater than 2x.

For WTPH methods, the lab utilizes method 8015B. Per CHPRC direction, the method name in the electronic data has been modified to read WTPH in the place of 8015B.

Per CHPRC direction (June 2014), Boron will be reported for Metals using method 6010. Boron will no longer be reported by method 6020.

Per CHPRC direction, due to the short hold times for Nitrate, Nitrite and Phosphate by IC (48 hours) as well as pH analysis (24 hours), a SIR request is not needed when samples are run outside 1x hold but within 2x hold. A narrative comment will be included below if a sample is run outside the lab-specified hold time for waters.

Per CHPRC direction, data for pH analysis will be reported outside 1x 24 hour hold time due to this being a field parameter.

IV. Definitions

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Job ID: 160-14847-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

QCBLK-	Quality Control Blank, Method Blank
QCLCS-	Quality Control Laboratory Control Sample, Blank Spike
DUP-	Laboratory Duplicate
MS-	Matrix Spike
MSD-	Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For Metals analyses, per standard practice, all solid samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate qualification unless otherwise noted in the case narrative.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O**- For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M**- For inorganic analyses, the precision was outside control limits.
- **P -** For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

Volatiles

Batch: 222537

There was no dry weight correction (% moisture) for the following the sample due to aliquot being sent in Encore plugs which were used for VOA analysis. Samples reported as received.

The continuing calibration verification (CCV) associated with batch 160-222537 recovered outside recommended criteria, minimum relative response factor, for Acetone. A reporting limit (RL) standard was analyzed, and the target analyte was detected; therefore, the data have been qualified and reported. (CCVIS 160-222537/8)

Semivolatiles

Batch: 224286

2,4,6-Tribromophenol (Surr) recovered low in the Method Blank and Terphenyl-d14 (Surr) recovered low in the sample B32HT8. These surrogates are not associated with client target analytes; therefore this excursion does not adversely affect the data. The data is reported with this narrative. B32HT8 (160-14847-1) and (MB 160-222947/1-A)

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Reviewed and approved:

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Job ID: 160-14847-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Jayna Awalt
St. Louis Project Manager

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-14847-1
SDG Number: SL2012

Login Number: 14847
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.8°
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-049-027	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC SL2012	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-10 -- SPT	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-474	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO TestAmerica St. Louis	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. 7749 7681 3620		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <=6C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT8	SOIL	NOV 12 2015	1117	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F.M. Hall/CHPRC	NOV 12 2015 1430	SSU-1	NOV 12 2015 1430
SSU-1	NOV 13 2015 0835	L.D. Wall CHPRC	NOV 13 2015 0835
L.D. Wall CHPRC	NOV 13 2015 1400	FEDEX	
FED EX		Brian Daniels	11/14/15 0811

SPECIAL INSTRUCTIONS
TRVL-15-142
(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4704 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 17 lbs			F15-049-028	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC SL2012	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H	DATA TURNAROUND
SAMPLING LOCATION 207-A-10 -- SPT	PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-474	FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO TestAmerica St. Louis	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. 7749 7681 3620		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Frozen/Cool <-7C and >-20C
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	5
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32HT9	SOIL	NOV 12 2015	1117	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1430	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 0835	RECEIVED BY/STORED IN L.D. Wall CHPRC	DATE/TIME NOV 13 2015 0835
RELINQUISHED BY/REMOVED FROM L.D. Wall CHPRC	DATE/TIME NOV 13 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FED EX	DATE/TIME	RECEIVED BY/STORED IN Brian Daniels	DATE/TIME 11/14/15 0815
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.** The laboratory is to use one of the low level VOA bottles for moisture content determination.** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/13/2015 FSR ID = FSR4704 TRVL NUM = TRVL-15-142 A-6003-618 (REV 2)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 207-A-10 TASL

Sampler Initials and Date: F.M. Hall/CHPRC NOV 12 2015

Sample Number [1]	Sample Suffix	Initial Weight [2] (grams)	Total Weight [3] (grams)	Soil Weight [4] (grams)
B32HT9	K	28.42	33.35	4.93
	L	28.54	33.25	4.71
	M	28.53	33.52	4.99
	N	28.77	33.68	4.91
B32HT9	P	28.70	33.22	4.52

[1] Enter sample number associated with the sampling event.

[2] Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

[3] Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

[4] Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

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774976813620

Ship date:
Fri 11/13/2015

RICHLAND, WA US

Delivered
Signed for by: B.DAVIS

Actual delivery:
Sat 11/14/2015 8:11 am

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 11/14/2015 - Saturday		
8:11 am	Delivered	EARTH CITY, MO
7:54 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:24 am	At local FedEx facility	EARTH CITY, MO
5:11 am	At destination sort facility	BERKELEY, MO
4:26 am	Departed FedEx location	MEMPHIS, TN
12:31 am	Arrived at FedEx location	MEMPHIS, TN
- 11/13/2015 - Friday		
5:12 pm	Left FedEx origin facility	PASCO, WA
4:12 pm	Shipment information sent to FedEx	
3:23 pm	Picked up	PASCO, WA

Shipment Facts

Tracking number	774976813620	**Service**	FedEx Priority Overnight
Weight	17 lbs / 7.71 kgs	**Delivered To**	Shipping/Receiving
Total pieces	1	**Total shipment weight**	17 lbs / 7.71 kgs
Shipper reference	gws-474	**Packaging**	Your Packaging
Special handling section	For Saturday Delivery, Additional Handling Surcharge		

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Customer Focus
New Customer Center
Small Business Center
Service Guide
Customer Support

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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-14847-1	B32HT8	Solid	11/12/15 11:17	11/14/15 08:15
160-14847-2	B32HT9	Solid	11/12/15 11:17	11/14/15 08:15

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS

Client Sample ID: B32HT9
Date Collected: 11/12/15 11:17
Date Received: 11/14/15 08:15

Lab Sample ID: 160-14847-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	5.5	U	17	5.5	ug/Kg		11/18/15 06:49	11/18/15 13:35	1
Methylene Chloride	1.3	U	4.2	1.3	ug/Kg		11/18/15 06:49	11/18/15 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*59 - 150*	*11/18/15 06:49*	*11/18/15 13:35*	*1*
Dibromofluoromethane (Surr)	*94*		*53 - 143*	*11/18/15 06:49*	*11/18/15 13:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*67 - 132*	*11/18/15 06:49*	*11/18/15 13:35*	*1*
Toluene-d8 (Surr)	*99*		*74 - 135*	*11/18/15 06:49*	*11/18/15 13:35*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: B32HT8
Date Collected: 11/12/15 11:17
Date Received: 11/14/15 08:15

Lab Sample ID: 160-14847-1
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	34	U	340	34	ug/Kg	☼	11/21/15 15:03	11/25/15 20:17	1
3 & 4 Methylphenol	69	U	680	69	ug/Kg	☼	11/21/15 15:03	11/25/15 20:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*89*		*54 - 102*	*11/21/15 15:03*	*11/25/15 20:17*	*1*
2,4,6-Tribromophenol (Surr)	*50*		*47 - 125*	*11/21/15 15:03*	*11/25/15 20:17*	*1*
Nitrobenzene-d5 (Surr)	*91*		*44 - 120*	*11/21/15 15:03*	*11/25/15 20:17*	*1*
Phenol-d5 (Surr)	*92*		*51 - 104*	*11/21/15 15:03*	*11/25/15 20:17*	*1*
Terphenyl-d14 (Surr)	*50*		*59 - 98*	*11/21/15 15:03*	*11/25/15 20:17*	*1*
2-Fluorobiphenyl (Surr)	*72*		*59 - 110*	*11/21/15 15:03*	*11/25/15 20:17*	*1*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 160-222534/1-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222534

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	6.5	U	20	6.5	ug/Kg		11/18/15 06:49	11/18/15 09:03	1
Methylene Chloride	1.6	U	5.0	1.6	ug/Kg		11/18/15 06:49	11/18/15 09:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*59 - 150*	*11/18/15 06:49*	*11/18/15 09:03*	*1*
Dibromofluoromethane (Surr)	*91*		*53 - 143*	*11/18/15 06:49*	*11/18/15 09:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*67 - 132*	*11/18/15 06:49*	*11/18/15 09:03*	*1*
Toluene-d8 (Surr)	*99*		*74 - 135*	*11/18/15 06:49*	*11/18/15 09:03*	*1*

Lab Sample ID: LCS 160-222534/2-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	50.0	54.9		ug/Kg		110	39 - 140
Methylene Chloride	50.0	49.9		ug/Kg		100	76 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*59 - 150*
Dibromofluoromethane (Surr)	*92*		*53 - 143*
1,2-Dichloroethane-d4 (Surr)	*100*		*67 - 132*
Toluene-d8 (Surr)	*99*		*74 - 135*

Lab Sample ID: LCSD 160-222534/3-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	50.0	49.4		ug/Kg		99	39 - 140	11	20
Methylene Chloride	50.0	47.8		ug/Kg		96	76 - 120	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*59 - 150*
Dibromofluoromethane (Surr)	*89*		*53 - 143*
1,2-Dichloroethane-d4 (Surr)	*98*		*67 - 132*
Toluene-d8 (Surr)	*99*		*74 - 135*

Lab Sample ID: 160-14847-2 MS
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	5.5	U	41.9	47.6		ug/Kg		114	54 - 139
Methylene Chloride	1.3	U	41.9	43.0		ug/Kg		102	77 - 123

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*59 - 150*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-14847-2 MS
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	93		53 - 143
1,2-Dichloroethane-d4 (Surr)	105		67 - 132
Toluene-d8 (Surr)	103		74 - 135

Lab Sample ID: 160-14847-2 MSD
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	5.5	U	41.3	48.5		ug/Kg		117	54 - 139	2	20
Methylene Chloride	1.3	U	41.3	45.6		ug/Kg		110	77 - 123	6	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		59 - 150
Dibromofluoromethane (Surr)	95		53 - 143
1,2-Dichloroethane-d4 (Surr)	101		67 - 132
Toluene-d8 (Surr)	100		74 - 135

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-222947/1-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	33	U	330	33	ug/Kg		11/21/15 15:03	11/25/15 15:54	1
3 & 4 Methylphenol	67	U	660	67	ug/Kg		11/21/15 15:03	11/25/15 15:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	78		54 - 102	11/21/15 15:03	11/25/15 15:54	1
2,4,6-Tribromophenol (Surr)	33		47 - 125	11/21/15 15:03	11/25/15 15:54	1
Nitrobenzene-d5 (Surr)	85		44 - 120	11/21/15 15:03	11/25/15 15:54	1
Phenol-d5 (Surr)	85		51 - 104	11/21/15 15:03	11/25/15 15:54	1
Terphenyl-d14 (Surr)	68		59 - 98	11/21/15 15:03	11/25/15 15:54	1
2-Fluorobiphenyl (Surr)	68		59 - 110	11/21/15 15:03	11/25/15 15:54	1

Lab Sample ID: LCS 160-222947/2-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222947

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2-Methylphenol			6670	5240		ug/Kg		79	53 - 97		
3 & 4 Methylphenol			6670	5720		ug/Kg		86	58 - 108		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	84		54 - 102
2,4,6-Tribromophenol (Surr)	53		47 - 125

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-222947/2-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222947

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5 (Surr)	85		44 - 120
Phenol-d5 (Surr)	85		51 - 104
Terphenyl-d14 (Surr)	69		59 - 98
2-Fluorobiphenyl (Surr)	69		59 - 110

Lab Sample ID: 160-14847-1 MS
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: B32HT8
Prep Type: Total/NA
Prep Batch: 222947

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	34	U	6900	5480		ug/Kg	☼	79	46 - 98
3 & 4 Methylphenol	69	U	6900	5940		ug/Kg	☼	86	48 - 111

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorophenol (Surr)	87		54 - 102
2,4,6-Tribromophenol (Surr)	60		47 - 125
Nitrobenzene-d5 (Surr)	88		44 - 120
Phenol-d5 (Surr)	88		51 - 104
Terphenyl-d14 (Surr)	69		59 - 98
2-Fluorobiphenyl (Surr)	70		59 - 110

Lab Sample ID: 160-14847-1 MSD
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: B32HT8
Prep Type: Total/NA
Prep Batch: 222947

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylphenol	34	U	6900	5660		ug/Kg	☼	82	46 - 98	3	30
3 & 4 Methylphenol	69	U	6900	6080		ug/Kg	☼	88	48 - 111	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorophenol (Surr)	89		54 - 102
2,4,6-Tribromophenol (Surr)	69		47 - 125
Nitrobenzene-d5 (Surr)	92		44 - 120
Phenol-d5 (Surr)	89		51 - 104
Terphenyl-d14 (Surr)	73		59 - 98
2-Fluorobiphenyl (Surr)	75		59 - 110

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

GC/MS VOA

Prep Batch: 222534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-2	B32HT9	Total/NA	Solid	5035	
160-14847-2 MS	B32HT9	Total/NA	Solid	5035	
160-14847-2 MSD	B32HT9	Total/NA	Solid	5035	
LCS 160-222534/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 160-222534/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 160-222534/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 222537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-2	B32HT9	Total/NA	Solid	8260C	222534
160-14847-2 MS	B32HT9	Total/NA	Solid	8260C	222534
160-14847-2 MSD	B32HT9	Total/NA	Solid	8260C	222534
LCS 160-222534/2-A	Lab Control Sample	Total/NA	Solid	8260C	222534
LCSD 160-222534/3-A	Lab Control Sample Dup	Total/NA	Solid	8260C	222534
MB 160-222534/1-A	Method Blank	Total/NA	Solid	8260C	222534

GC/MS Semi VOA

Prep Batch: 222947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-1	B32HT8	Total/NA	Solid	3550C	
160-14847-1 MS	B32HT8	Total/NA	Solid	3550C	
160-14847-1 MSD	B32HT8	Total/NA	Solid	3550C	
LCS 160-222947/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 160-222947/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 224286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-1	B32HT8	Total/NA	Solid	8270D	222947
160-14847-1 MS	B32HT8	Total/NA	Solid	8270D	222947
160-14847-1 MSD	B32HT8	Total/NA	Solid	8270D	222947
LCS 160-222947/2-A	Lab Control Sample	Total/NA	Solid	8270D	222947
MB 160-222947/1-A	Method Blank	Total/NA	Solid	8270D	222947

General Chemistry

Analysis Batch: 222327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-1	B32HT8	Total/NA	Solid	Moisture	
160-14847-1 DU	B32HT8	Total/NA	Solid	Moisture	

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	12DCE	TOL
Lab Sample ID	Client Sample ID	(59-150)	(53-143)	(67-132)	(74-135)
160-14847-2	B32HT9	116	94	104	99
160-14847-2 MS	B32HT9	117	93	105	103
160-14847-2 MSD	B32HT9	107	95	101	100
LCS 160-222534/2-A	Lab Control Sample	107	92	100	99
LCSD 160-222534/3-A	Lab Control Sample Dup	111	89	98	99
MB 160-222534/1-A	Method Blank	113	91	100	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	TBP	NBZ	PHL	TPH	FBP
Lab Sample ID	Client Sample ID	(54-102)	(47-125)	(44-120)	(51-104)	(59-98)	(59-110)
160-14847-1	B32HT8	89	50	91	92	50	72
160-14847-1 MS	B32HT8	87	60	88	88	69	70
160-14847-1 MSD	B32HT8	89	69	92	89	73	75
LCS 160-222947/2-A	Lab Control Sample	84	53	85	85	69	69
MB 160-222947/1-A	Method Blank	78	33	85	85	68	68

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)
FBP = 2-Fluorobiphenyl (Surr)

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Appendix J

Visual Sample Plan Data Summary Report

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207-A South Retention Basin Clean Closure Visual Sample Plan (VSP) Report

Summary Statistics comparing Sample Results to Design Assumptions

Systematic sampling locations for comparing a median with a fixed threshold (nonparametric - MARSSIM)

Summary

This report summarizes the sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan.

The following table summarizes the sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Compare a site mean or median to a fixed threshold
Type of Sampling Design	Nonparametric
Sample Placement (Location) in the Field	Systematic with a random start location
Working (Null) Hypothesis	The median (mean) value at the site exceeds the threshold
Formula for calculating number of sampling locations	Sign Test - MARSSIM version
Calculated total number of samples	20
Number of samples on map [a]	20
Number of selected sample areas [b]	1
Specified sampling area [c]	1,313.6 m^2 (14140.00 ft^2)
Size of grid / Area of grid cell [d]	28.5722 m / 707 m^2 (93.7 ft / 7,610 ft^2)
Grid pattern	Triangular

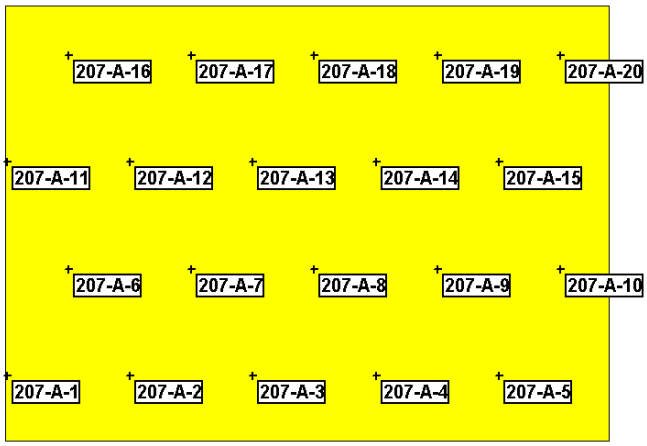
[a] This number may differ from the calculated number because of 1) grid edge effects, 2) adding judgment samples, or 3) selecting or unselecting sample areas.

[b] The number of selected sample areas is the number of colored areas on the map of the site. These sample areas contain the locations where samples are collected.

[c] The sampling area is the total surface area of the selected colored sample areas on the map of the site.

[d] Size of grid / Area of grid cell gives the linear and square dimensions of the grid used to systematically place samples.

Area: 207-A South Retention Basin Values Shown for Acetone			
X Coord	**Y Coord**	**Label**	**Value**
0.2535	15.1433	207-A-1	3.42
28.8257	15.1433	207-A-2	3.09
57.3980	15.1433	207-A-3	3.36
85.9702	15.1433	207-A-4	3.06
114.5425	15.1433	207-A-5	3.22
14.5396	39.8876	207-A-6	3.22
43.1119	39.8876	207-A-7	3.27
71.6841	39.8876	207-A-8	3.23
100.2564	39.8876	207-A-9	3.18
128.8286	39.8876	207-A-10	3.12
0.2535	64.6318	207-A-11	2.72
28.8257	64.6318	207-A-12	3.15
57.3980	64.6318	207-A-13	3.09
85.9702	64.6318	207-A-14	3.14
114.5425	64.6318	207-A-15	3.08
14.5396	89.3761	207-A-16	4.04
43.1119	89.3761	207-A-17	3.10
71.6841	89.3761	207-A-18	3.26
100.2564	89.3761	207-A-19	3.05
128.8286	89.3761	207-A-20	2.74



Primary Sampling Objective
The primary purpose of sampling at this site is to compare a site median or mean value with a fixed threshold. The working hypothesis (or 'null' hypothesis) is that the median (mean) value at the site is equal to or exceeds the threshold. The alternative hypothesis is that the median (mean) value is less than the threshold. VSP calculates the number of samples required to reject the null hypothesis in favor of the alternative one, given a selected sampling approach and inputs to the associated equation.

Selected Sampling Approach
A nonparametric systematic sampling approach with a random start was used to determine the number of samples and to specify sampling locations. A nonparametric formula was chosen because the conceptual model and historical information (e.g., historical data from this site or a very similar site) indicate that typical parametric assumptions may not be true.

Both parametric and non-parametric equations rely on assumptions about the population. Typically, however, non-parametric equations require fewer assumptions and allow for more uncertainty about the statistical distribution of values at the site. The trade-off is that if the parametric assumptions are valid, the required number of samples is usually less than if a non-parametric equation was used.

Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site. Statistical analyses of systematically collected data are valid if a random start to the grid is used. One disadvantage of systematically collected samples is that spatial variability or patterns may not be discovered if the grid spacing is large relative to the spatial patterns.

Number of Total Samples: Calculation Equation and Inputs

The equation used to calculate the number of samples is based on a Sign test (see PNNL 13450 for discussion). For this site, the null hypothesis is rejected in favor of the alternative one if the median (mean) is sufficiently smaller than the threshold. The number of samples to collect is calculated so that if the inputs to the equation are true, the calculated number of samples will cause the null hypothesis to be rejected.

The formula used to calculate the number of samples is:

$$n = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(SignP - 0.5)^2} \qquad \text{where} \qquad SignP = \Phi\left(\frac{\Delta}{s_{total}}\right)$$

$\Phi(z)$ is the cumulative standard normal distribution on $(-\infty,z)$ (see PNNL-13450 for details),

n is the number of samples,

S_{total} is the estimated standard deviation of the measured values including analytical error,

Δ is the width of the gray region,

α is the acceptable probability of incorrectly concluding the site median (mean) is less than the threshold,

β is the acceptable probability of incorrectly concluding the site median (mean) exceeds the threshold,

$Z_{1-\alpha}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\alpha}$ is $1-\alpha$,

$Z_{1-\beta}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\beta}$ is $1-\beta$.

Note: MARSSIM suggests that the number of samples should be increased by at least 20% to account for missing or unusable data and uncertainty in the calculated value of n. VSP allows a user-supplied percent overage as discussed in MARSSIM (EPA 2000, p. 5-33).

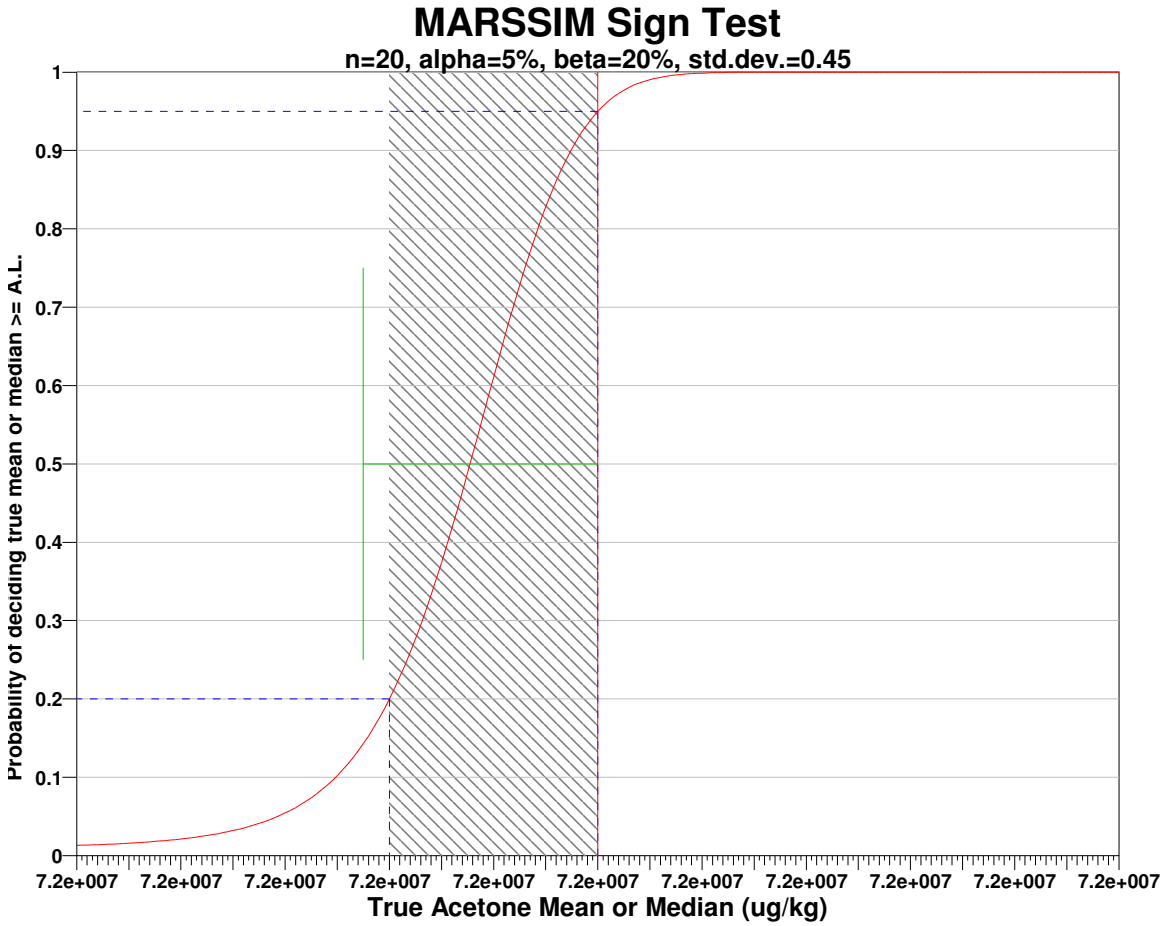
The values of these inputs that result in the calculated number of sampling locations are:

Analyte	**n**[a]	**Parameter**					
		S	**Δ**	**α**	**β**	$Z_{1-\alpha}$ [b]	$Z_{1-\beta}$ [c]
Acetone	20	0.45 µg/kg	0.4 µg/kg	0.05	0.2	1.64485	0.841621
Methylene chloride	20	0.45 µg/kg	0.4 µg/kg	0.05	0.2	1.64485	0.841621
2-Methylphenol (cresol, o-)	20	0.45 µg/kg	0.4 µg/kg	0.05	0.2	1.64485	0.841621
3+4 Methylphenol (cresol, m+p)	20	0.45 µg/kg	0.4 µg/kg	0.05	0.2	1.64485	0.841621

[a] The final number of samples has been increased by the MARSSIM Overage of 20%.
[b] This value is automatically calculated by VSP based upon the user defined value of α.
[c] This value is automatically calculated by VSP based upon the user defined value of β.

The following figure is a performance goal diagram, described in EPA's QA/G-4 guidance (EPA, 2000). It shows the probability of concluding the sample area is dirty on the vertical axis versus a range of possible true median (mean) values for the site on the horizontal axis. This graph contains all of the inputs to the number of samples equation and pictorially represents the calculation.

The red vertical line is shown at the threshold (action limit) on the horizontal axis. The width of the gray shaded area is equal to Δ; the upper horizontal dashed blue line is positioned at $1-\alpha$ on the vertical axis; the lower horizontal dashed blue line is positioned at β on the vertical axis. The vertical green line is positioned at one standard deviation below the threshold. The shape of the red curve corresponds to the estimates of variability. The calculated number of samples results in the curve that passes through the lower bound of Δ at β and the upper bound of Δ at $1-\alpha$. If any of the inputs change, the number of samples that result in the correct curve changes.



Statistical Assumptions

The assumptions associated with the formulas for computing the number of samples are:

1. the computed sign test statistic is normally distributed,
2. the variance estimate, S^2, is reasonable and representative of the population being sampled,
3. the population values are not spatially or temporally correlated, and
4. the sampling locations will be selected probabilistically.

The first three assumptions will be assessed in a post data collection analysis. The last assumption is valid because the gridded sample locations were selected based on a random start.

Sensitivity Analysis

The sensitivity of the calculation of number of samples was explored by varying the standard deviation, lower bound of gray region (% of action level), beta (%), probability of mistakenly concluding that $\mu >$ action level and alpha (%), probability of mistakenly concluding that $\mu <$ action level. The following table shows the results of this analysis.

Number of Samples							
AL=7.2e+007		α=5		α=10		α=15	
		s=0.9	s=0.45	s=0.9	s=0.45	s=0.9	s=0.45
LBGR=90	β=15	10	10	8	8	6	6
	β=20	9	9	6	6	5	5
	β=25	8	8	5	5	4	4
LBGR=80	β=15	10	10	8	8	6	6
	β=20	9	9	6	6	5	5
	β=25	8	8	5	5	4	4
LBGR=70	β=15	10	10	8	8	6	6
	β=20	9	9	6	6	5	5
	β=25	8	8	5	5	4	4

Where:

s = Standard Deviation
LBGR = Lower Bound of Gray Region (% of Action Level)
β = Beta (%), Probability of mistakenly concluding that μ > action level
α = Alpha (%), Probability of mistakenly concluding that μ < action level
AL = Action Level (Threshold) = 7.20E+04 mg/kg (7.2E+-7 μg/kg)

Analysis of the individual analytes follows.

Acetone

Data Analysis for Acetone
The following data points were entered by the user for analysis.

Acetone (μg/kg)										
Rank	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	2.72	2.74	3.05	3.06	3.08	3.09	3.09	3.1	3.12	3.14
10	3.15	3.18	3.22	3.22	3.23	3.26	3.27	3.36	3.42	4.04

SUMMARY STATISTICS for Acetone	
n	20
Min	2.72
Max	4.04
Range	1.32
Mean	3.177
Median	3.145
Variance	0.069727
StdDev	0.26406
Std Error	0.059045
Skewness	1.5227
Interquartile Range	0.17

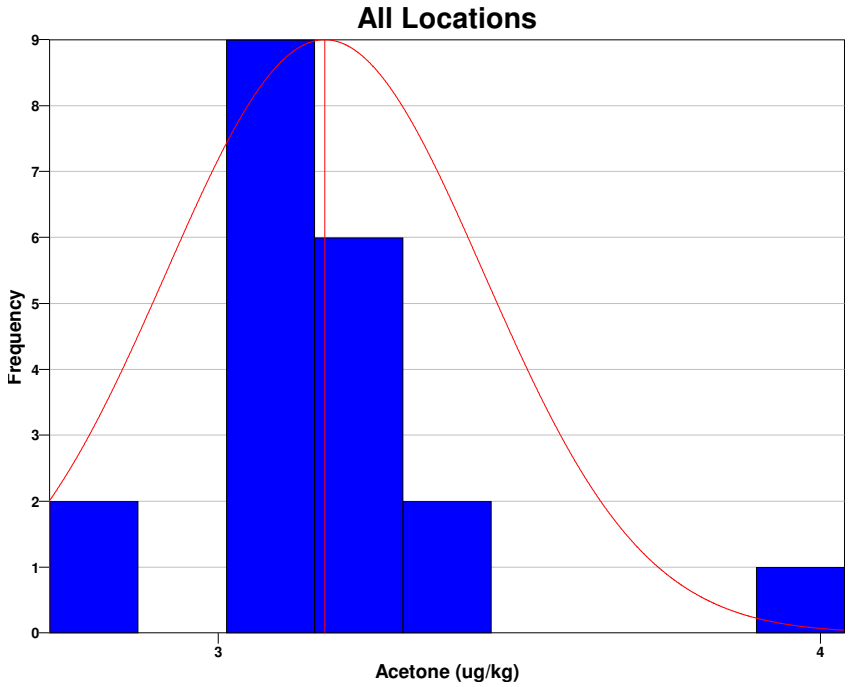
Percentiles								
1%	**5%**	**10%**	**25%**	**50%**	**75%**	**90%**	**95%**	**99%**
2.72	2.721	2.771	3.083	3.145	3.252	3.414	4.009	4.04

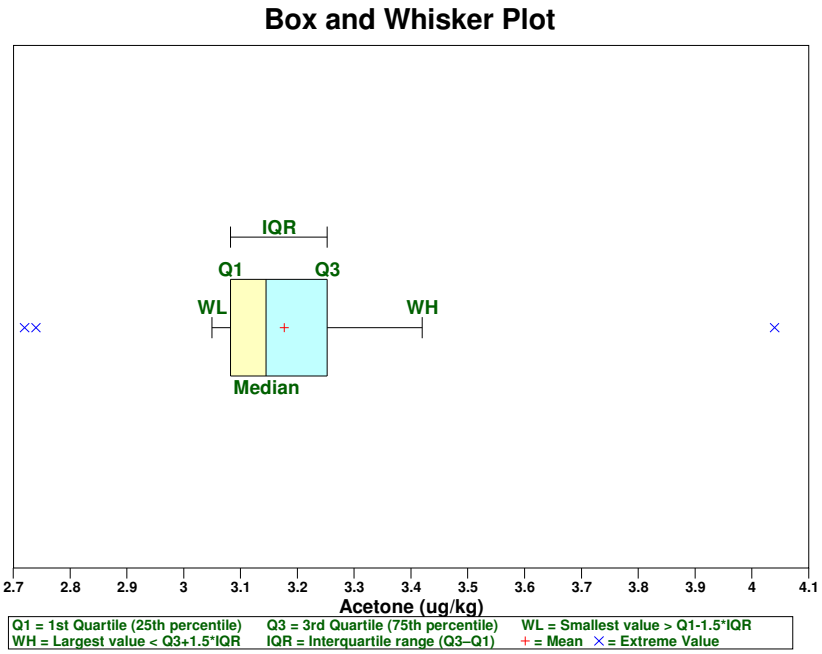
Data Plots
Three graphical displays of the data are shown below: the Histogram, the Box and Whiskers plot, and the Quantile-Quantile (Q-Q) plot.

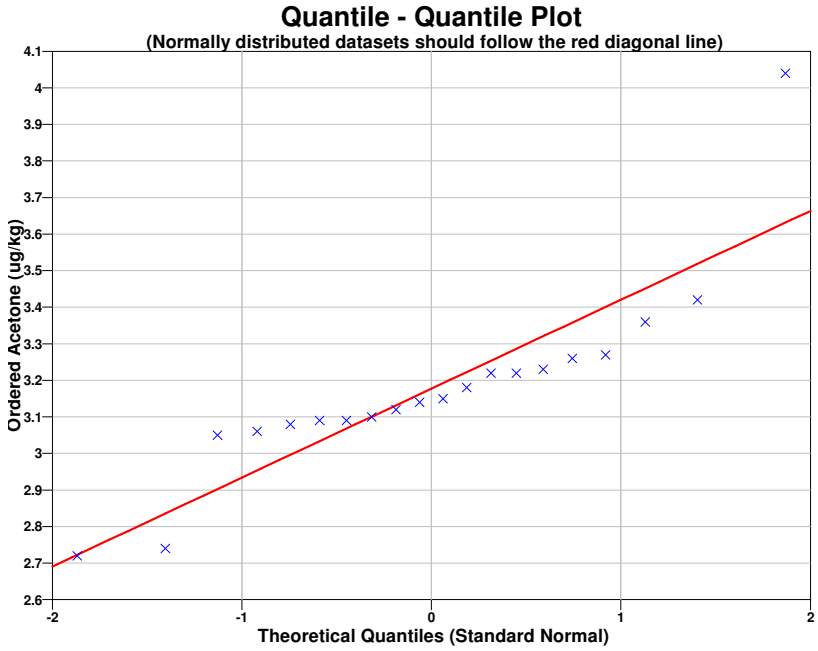
The Histogram is a plot of the fraction of the n observed data that fall within specified data “bins.” A histogram is generated by dividing the x axis (range of the observed data values) into "bins" and displaying the number of data in each bin as the height of a bar for the bin. The area of the bar is the fraction of the n data values that lie within the bin. The sum of the fractions for all bins equals one. A histogram is used to assess how the n data are distributed (spread) over their range of values. If the histogram is more or less symmetric and bell shaped, then the data may be normally distributed.

The Box and Whiskers plot is composed of a central box divided by a line, and with two lines extending out from the box, called the "whiskers". The line through the box is drawn at the median of the n data observed. The two ends of the box represent the 25th and 75th percentiles of the n data values, which are also called the lower and upper quartiles, respectively, of the data set. The sample mean (mean of the n data) is shown as a "+" sign. The upper whisker extends to the largest data value that is less than the upper quartile plus 1.5 times the interquartile range (upper quartile minus the lower quartile). The lower whisker extends to the smallest data value that is greater than the lower quartile minus 1.5 times the interquartile range. Extreme data values (greater or smaller than the ends of the whiskers) are plotted individually. A Box and Whiskers plot is used to assess the symmetry of the distribution of the data set. If the distribution is symmetrical, the box is divided into two equal halves by the median, the whiskers will be the same length, and the number of extreme data points will be distributed equally on either end of the plot.

The Q-Q plot graphs the quantiles of a set of n data against the quantiles of a specific distribution. We show here only the Q-Q plot for an assumed normal distribution. The pth quantile of a distribution of data is the data value, x_p, for which a fraction p of the distribution is less than x_p. If the data plotted on the normal distribution Q-Q plot closely follow a straight line, even at the ends of the line, then the data may be assumed to be normally distributed. If the data points deviate substantially from a linear line, then the data are not normally distributed.







For more information on these three plots consult Guidance for Data Quality Assessment, EPA QA/G-9, pgs 2.3-1 through 2.3-12. (http://www.epa.gov/quality/qa-docs.html).

Tests for Acetone

A goodness-of-fit test was performed to test whether the data set had been drawn from an underlying normal distribution. The Shapiro-Wilk (SW) test was used to test the null hypothesis that the data are normally distributed. The test was conducted at the 5% significance level, i.e., the probability the test incorrectly rejects the null hypothesis was set at 0.05.

NORMAL DISTRIBUTION TEST	
Shapiro-Wilk Test Statistic	0.8163
Shapiro-Wilk 5% Critical Value	0.905

The calculated SW test statistic is less than the 5% Shapiro-Wilk critical value, so we can reject the hypothesis that the data are normal, or in other words the data do not appear to follow a normal distribution at the 5% level of significance. The Q-Q plot displayed above should be used to further assess the normality of the data.

Upper Confidence Limit on the True Mean
Two methods were used to compute the upper confidence limit (UCL) on the mean. The first is a parametric method that assumes a normal distribution. The second is the Chebyshev method, which requires no distributional assumption.

UCLs ON THE MEAN	
95% Parametric UCL	3.2791
95% Non-Parametric (Chebyshev) UCL	3.4344

Because the data do not appear to be normally distributed according to the goodness-of-fit test performed above, the non-parametric UCL (3.434) may be a more accurate upper confidence limit on the true mean.

MARSSIM Sign Test
The Sign test was performed in accordance with the guidance given in section 8.3.2 of MARSSIM. Each measurement was subtracted from the action level to obtain *n* differences $d_i = AL - X_i$. Any differences of zero were discarded from consideration and the sample size was reduced accordingly. The test statistic S+ was calculated by counting the positive differences. S+ was then compared with the critical value *k*, which was obtained from Table I.3 in Appendix I of MARSSIM.

If $S+ > k$, then the null hypothesis is rejected.

MARSSIM SIGN TEST		
Test Statistic S+	**95% Critical Value**	**Null Hypothesis**
20	14	Reject

The test rejected the null hypothesis for acetone that the mean value at the site exceeds the threshold, so conclude the **site is clean**.

Methylene chloride

Data Analysis for Methylene chloride
The following data points were entered by the user for analysis.

Methylene chloride (µg/kg)										
Rank	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	1.45	1.46	1.63	1.63	1.64	1.65	1.65	1.65	1.67	1.67
10	1.68	1.7	1.72	1.72	1.72	1.74	1.74	1.79	1.82	6.73

SUMMARY STATISTICS for Methylene chloride	
n	20
Min	1.45
Max	6.73

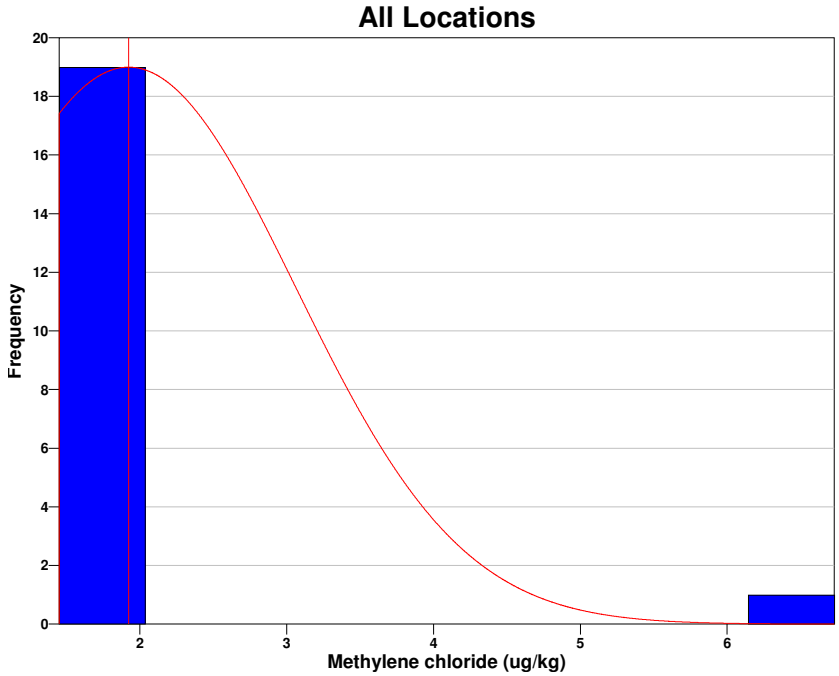
Range				5.28				
Mean				1.923				
Median				1.675				
Variance				1.2882				
StdDev				1.135				
Std Error				0.25379				
Skewness				4.4251				
Interquartile Range				0.0925				
Percentiles								
1%	**5%**	**10%**	**25%**	**50%**	**75%**	**90%**	**95%**	**99%**
1.45	1.45	1.477	1.642	1.675	1.735	1.817	6.484	6.73

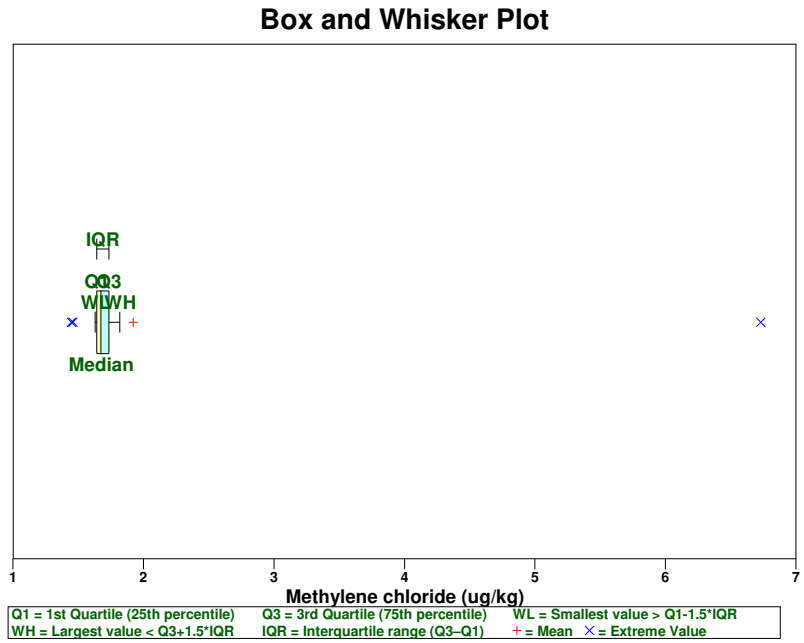
Data Plots
Three graphical displays of the data are shown below: the Histogram, the Box and Whiskers plot, and the Quantile-Quantile (Q-Q) plot.

The Histogram is a plot of the fraction of the n observed data that fall within specified data “bins.” A histogram is generated by dividing the x axis (range of the observed data values) into "bins" and displaying the number of data in each bin as the height of a bar for the bin. The area of the bar is the fraction of the n data values that lie within the bin. The sum of the fractions for all bins equals one. A histogram is used to assess how the n data are distributed (spread) over their range of values. If the histogram is more or less symmetric and bell shaped, then the data may be normally distributed.

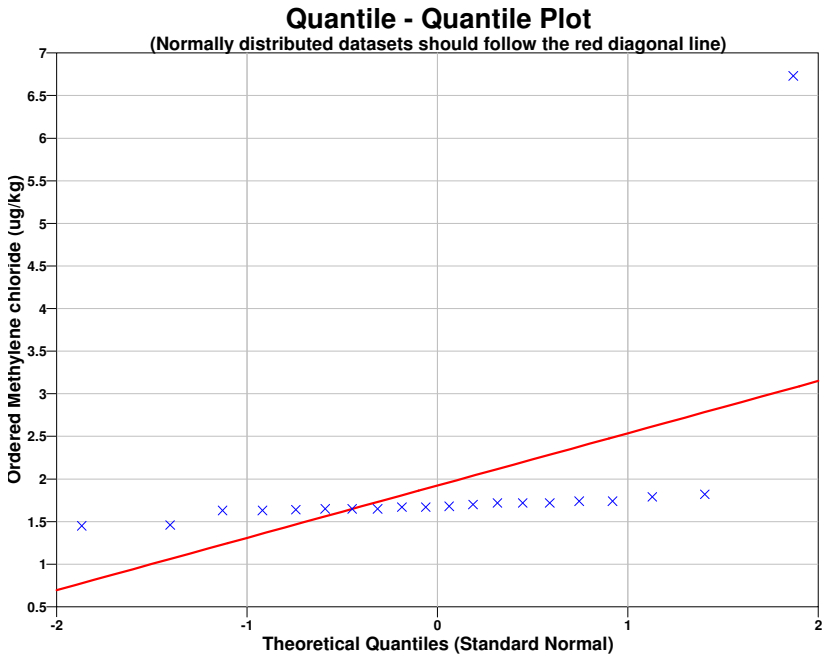
The Box and Whiskers plot is composed of a central box divided by a line, and with two lines extending out from the box, called the "whiskers". The line through the box is drawn at the median of the n data observed. The two ends of the box represent the 25th and 75th percentiles of the n data values, which are also called the lower and upper quartiles, respectively, of the data set. The sample mean (mean of the n data) is shown as a "+" sign. The upper whisker extends to the largest data value that is less than the upper quartile plus 1.5 times the interquartile range (upper quartile minus the lower quartile). The lower whisker extends to the smallest data value that is greater than the lower quartile minus 1.5 times the interquartile range. Extreme data values (greater or smaller than the ends of the whiskers) are plotted individually. A Box and Whiskers plot is used to assess the symmetry of the distribution of the data set. If the distribution is symmetrical, the box is divided into two equal halves by the median, the whiskers will be the same length, and the number of extreme data points will be distributed equally on either end of the plot.

The Q-Q plot graphs the quantiles of a set of n data against the quantiles of a specific distribution. We show here only the Q-Q plot for an assumed normal distribution. The pth quantile of a distribution of data is the data value, x_p, for which a fraction p of the distribution is less than x_p. If the data plotted on the normal distribution Q-Q plot closely follow a straight line, even at the ends of the line, then the data may be assumed to be normally distributed. If the data points deviate substantially from a linear line, then the data are not normally distributed.





Extreme value (outlier) in box-and-whisker plot was assigned during data validation. Original sample result was 2.97 J (estimated detect). Data validation qualifier was assigned at 6.72 U (non-detect) based on blank contamination.



For more information on these three plots consult Guidance for Data Quality Assessment, EPA QA/G-9, pgs 2.3-1 through 2.3-12. (http://www.epa.gov/quality/qa-docs.html).

Tests for Methylene chloride

A goodness-of-fit test was performed to test whether the data set had been drawn from an underlying normal distribution. The Shapiro-Wilk (SW) test was used to test the null hypothesis that the data are normally distributed. The test was conducted at the 5% significance level, i.e., the probability the test incorrectly rejects the null hypothesis was set at 0.05.

NORMAL DISTRIBUTION TEST	
Shapiro-Wilk Test Statistic	0.302
Shapiro-Wilk 5% Critical Value	0.905

The calculated SW test statistic is less than the 5% Shapiro-Wilk critical value, so we can reject the hypothesis that the data are normal, or in other words the data do not appear to follow a normal distribution at the 5% level of significance. The Q-Q plot displayed above should be used to further assess the normality of the data.

Upper Confidence Limit on the True Mean

Two methods were used to compute the upper confidence limit (UCL) on the mean. The first is a parametric method that assumes a normal distribution. The second is the Chebyshev method, which requires no distributional assumption.

UCLs ON THE MEAN	
95% Parametric UCL	2.3618
95% Non-Parametric (Chebyshev) UCL	3.0293

Because the data do not appear to be normally distributed according to the goodness-of-fit test performed above, the non-parametric UCL (3.029) may be a more accurate upper confidence limit on the true mean.

MARSSIM Sign Test
The Sign test was performed in accordance with the guidance given in section 8.3.2 of MARSSIM. Each measurement was subtracted from the action level to obtain *n* differences $d_i = AL - X_i$. Any differences of zero were discarded from consideration and the sample size was reduced accordingly. The test statistic S+ was calculated by counting the positive differences. S+ was then compared with the critical value *k*, which was obtained from Table I.3 in Appendix I of MARSSIM.

If $S+ > k$, then the null hypothesis is rejected.

MARSSIM SIGN TEST		
Test Statistic S+	**95% Critical Value**	**Null Hypothesis**
20	14	Reject

The test rejected the null hypothesis for methylene chloride that the mean value at the site exceeds the threshold, so conclude the **site is clean**.

2-Methylphenol (o-cresol)

Data Analysis for 2-Methylphenol (cresol, o-)
The following data points were entered by the user for analysis.

2-Methylphenol (cresol, o-) (µg/kg)										
Rank	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	103	103	103	104	104	104	104	104	104	105
10	105	105	106	108	108	108	108	109	112	113

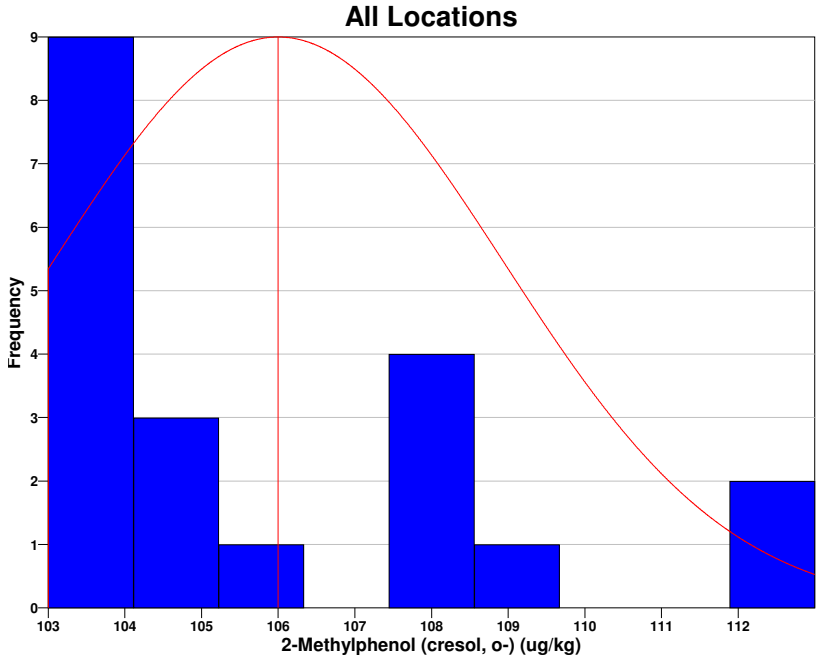
SUMMARY STATISTICS for 2-Methylphenol (cresol, o-)								
n	20							
Min	103							
Max	113							
Range	10							
Mean	106							
Median	105							
Variance	8.6316							
StdDev	2.938							
Std Error	0.65695							
Skewness	1.1207							
Interquartile Range	4							
Percentiles								
1%	**5%**	**10%**	**25%**	**50%**	**75%**	**90%**	**95%**	**99%**
103	103	103	104	105	108	111.7	113	113

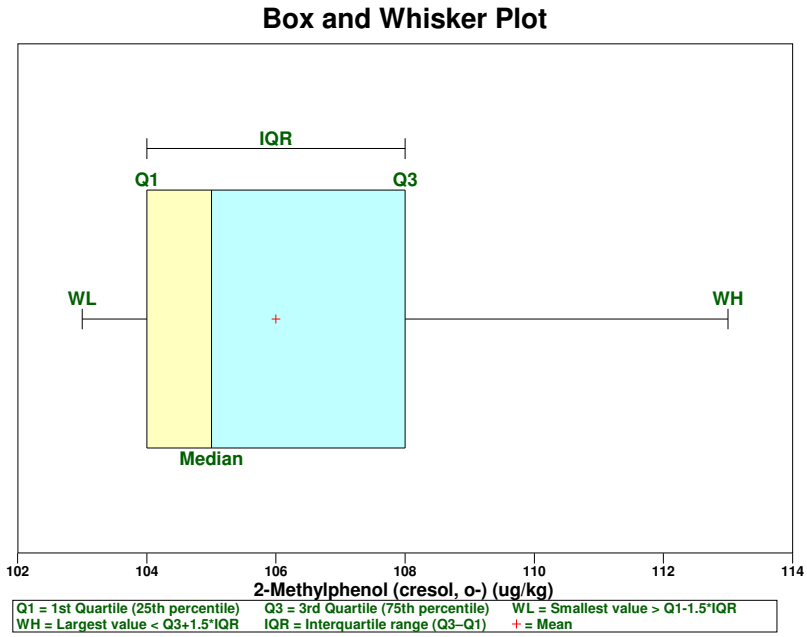
Data Plots
Three graphical displays of the data are shown below: the Histogram, the Box and Whiskers plot, and the Quantile-Quantile (Q-Q) plot.

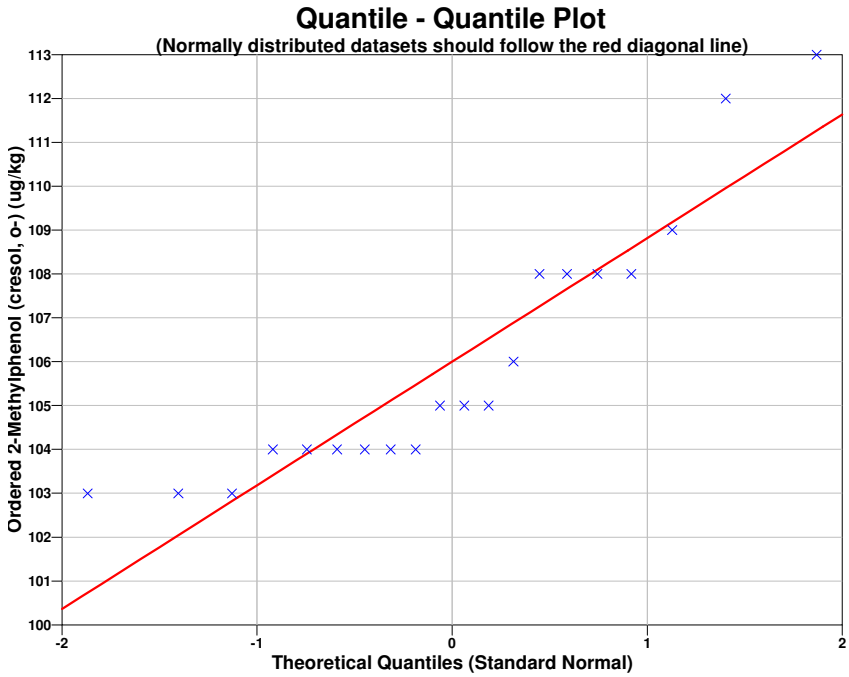
The Histogram is a plot of the fraction of the n observed data that fall within specified data “bins.” A histogram is generated by dividing the x axis (range of the observed data values) into "bins" and displaying the number of data in each bin as the height of a bar for the bin. The area of the bar is the fraction of the n data values that lie within the bin. The sum of the fractions for all bins equals one. A histogram is used to assess how the n data are distributed (spread) over their range of values. If the histogram is more or less symmetric and bell shaped, then the data may be normally distributed.

The Box and Whiskers plot is composed of a central box divided by a line, and with two lines extending out from the box, called the "whiskers". The line through the box is drawn at the median of the n data observed. The two ends of the box represent the 25th and 75th percentiles of the n data values, which are also called the lower and upper quartiles, respectively, of the data set. The sample mean (mean of the n data) is shown as a "+" sign. The upper whisker extends to the largest data value that is less than the upper quartile plus 1.5 times the interquartile range (upper quartile minus the lower quartile). The lower whisker extends to the smallest data value that is greater than the lower quartile minus 1.5 times the interquartile range. Extreme data values (greater or smaller than the ends of the whiskers) are plotted individually. A Box and Whiskers plot is used to assess the symmetry of the distribution of the data set. If the distribution is symmetrical, the box is divided into two equal halves by the median, the whiskers will be the same length, and the number of extreme data points will be distributed equally on either end of the plot.

The Q-Q plot graphs the quantiles of a set of n data against the quantiles of a specific distribution. We show here only the Q-Q plot for an assumed normal distribution. The pth quantile of a distribution of data is the data value, x_p, for which a fraction p of the distribution is less than x_p. If the data plotted on the normal distribution Q-Q plot closely follow a straight line, even at the ends of the line, then the data may be assumed to be normally distributed. If the data points deviate substantially from a linear line, then the data are not normally distributed.







For more information on these three plots consult Guidance for Data Quality Assessment, EPA QA/G-9, pgs 2.3-1 through 2.3-12. (http://www.epa.gov/quality/qa-docs.html).

Tests for 2-Methylphenol (cresol, o-)

A goodness-of-fit test was performed to test whether the data set had been drawn from an underlying normal distribution. The Shapiro-Wilk (SW) test was used to test the null hypothesis that the data are normally distributed. The test was conducted at the 5% significance level, i.e., the probability the test incorrectly rejects the null hypothesis was set at 0.05.

NORMAL DISTRIBUTION TEST	
Shapiro-Wilk Test Statistic	0.8482
Shapiro-Wilk 5% Critical Value	0.905

The calculated SW test statistic is less than the 5% Shapiro-Wilk critical value, so we can reject the hypothesis that the data are normal, or in other words the data do not appear to follow a normal distribution at the 5% level of significance. The Q-Q plot displayed above should be used to further assess the normality of the data.

Upper Confidence Limit on the True Mean
Two methods were used to compute the upper confidence limit (UCL) on the mean. The first is a parametric method that assumes a normal distribution. The second is the Chebyshev method, which requires no distributional assumption.

UCLs ON THE MEAN	
95% Parametric UCL	107.14
95% Non-Parametric (Chebyshev) UCL	108.86

Because the data do not appear to be normally distributed according to the goodness-of-fit test performed above, the non-parametric UCL (108.9) may be a more accurate upper confidence limit on the true mean.

MARSSIM Sign Test
The Sign test was performed in accordance with the guidance given in section 8.3.2 of MARSSIM. Each measurement was subtracted from the action level to obtain *n* differences $d_i = AL - X_i$. Any differences of zero were discarded from consideration and the sample size was reduced accordingly. The test statistic S+ was calculated by counting the positive differences. S+ was then compared with the critical value *k*, which was obtained from Table I.3 in Appendix I of MARSSIM.

If $S+ > k$, then the null hypothesis is rejected.

MARSSIM SIGN TEST		
Test Statistic S+	**95% Critical Value**	**Null Hypothesis**
20	14	Reject

The test rejected the null hypothesis for 2-Methylphenol (cresol, o-) that the mean value at the site exceeds the threshold, so conclude the **site is clean**.

3+4 Methylphenol (m+p cresol)

Data Analysis for 3+4 Methylphenol (cresol, m+p)
The following data points were entered by the user for analysis.

3+4 Methylphenol (cresol, m+p) (µg/kg)										
Rank	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	103	103	103	104	104	104	104	104	104	105
10	105	105	106	108	108	108	108	109	112	113

SUMMARY STATISTICS for 3+4 Methylphenol (cresol, m+p)								
n				20				
Min				103				
Max				113				
Range				10				
Mean				106				
Median				105				
Variance				8.6316				
StdDev				2.938				
Std Error				0.65695				
Skewness				1.1207				
Interquartile Range				4				
Percentiles								
1%	**5%**	**10%**	**25%**	**50%**	**75%**	**90%**	**95%**	**99%**
103	103	103	104	105	108	111.7	113	113

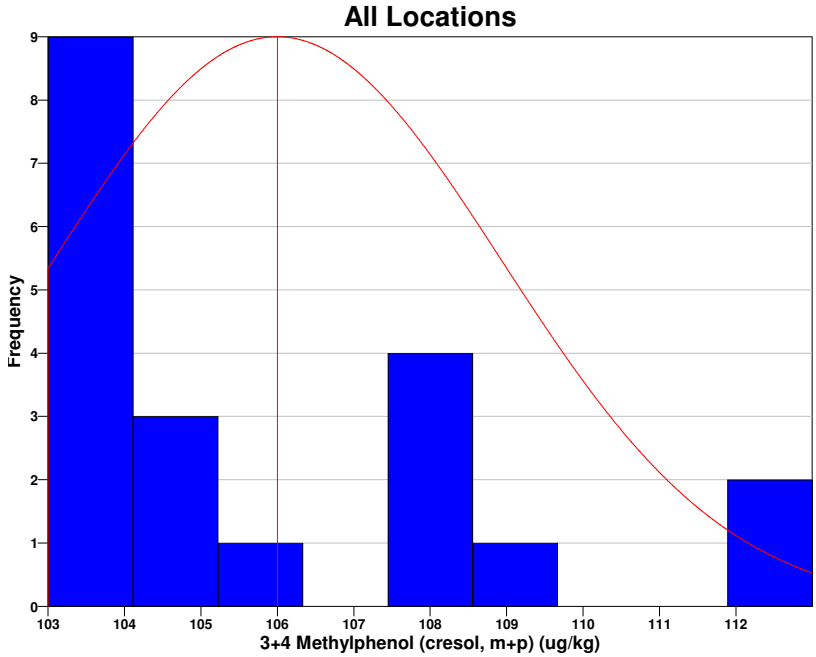
Data Plots

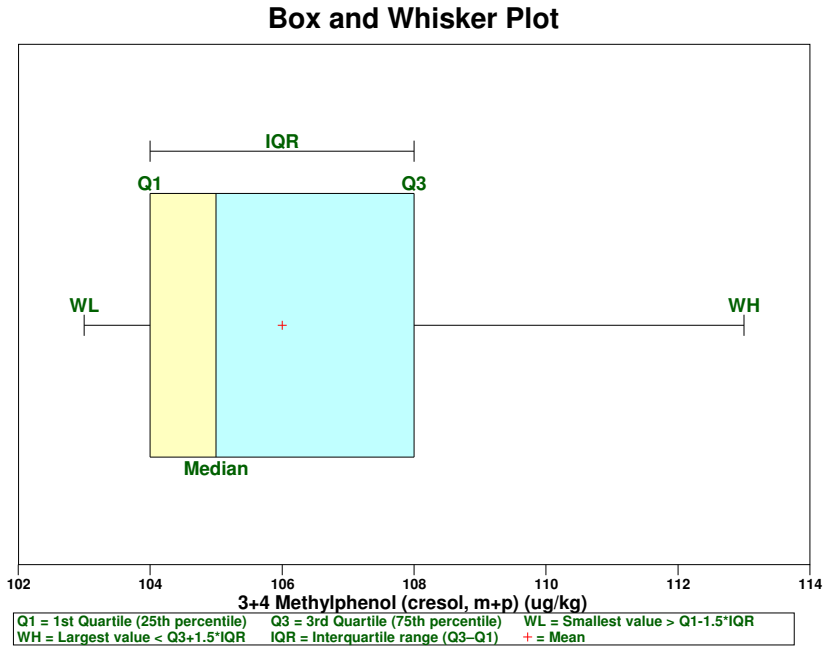
Three graphical displays of the data are shown below: the Histogram, the Box and Whiskers plot, and the Quantile-Quantile (Q-Q) plot.

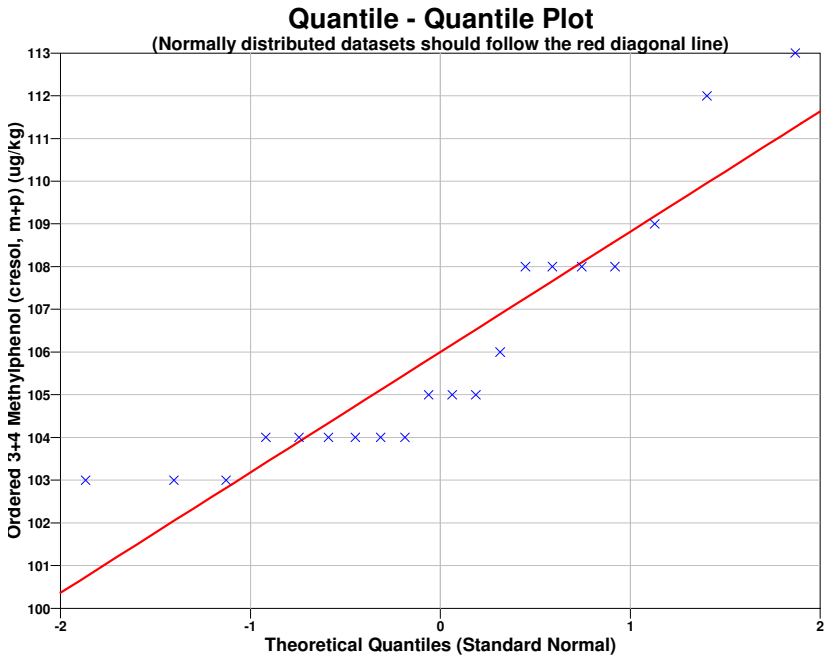
The Histogram is a plot of the fraction of the n observed data that fall within specified data “bins.” A histogram is generated by dividing the x axis (range of the observed data values) into "bins" and displaying the number of data in each bin as the height of a bar for the bin. The area of the bar is the fraction of the n data values that lie within the bin. The sum of the fractions for all bins equals one. A histogram is used to assess how the n data are distributed (spread) over their range of values. If the histogram is more or less symmetric and bell shaped, then the data may be normally distributed.

The Box and Whiskers plot is composed of a central box divided by a line, and with two lines extending out from the box, called the "whiskers". The line through the box is drawn at the median of the n data observed. The two ends of the box represent the 25th and 75th percentiles of the n data values, which are also called the lower and upper quartiles, respectively, of the data set. The sample mean (mean of the n data) is shown as a "+" sign. The upper whisker extends to the largest data value that is less than the upper quartile plus 1.5 times the interquartile range (upper quartile minus the lower quartile). The lower whisker extends to the smallest data value that is greater than the lower quartile minus 1.5 times the interquartile range. Extreme data values (greater or smaller than the ends of the whiskers) are plotted individually. A Box and Whiskers plot is used to assess the symmetry of the distribution of the data set. If the distribution is symmetrical, the box is divided into two equal halves by the median, the whiskers will be the same length, and the number of extreme data points will be distributed equally on either end of the plot.

The Q-Q plot graphs the quantiles of a set of n data against the quantiles of a specific distribution. We show here only the Q-Q plot for an assumed normal distribution. The pth quantile of a distribution of data is the data value, x_p, for which a fraction p of the distribution is less than x_p. If the data plotted on the normal distribution Q-Q plot closely follow a straight line, even at the ends of the line, then the data may be assumed to be normally distributed. If the data points deviate substantially from a linear line, then the data are not normally distributed.


All Locations
Frequency
0
1
2
3
4
5
6
7
8
9
103
104
105
106
107
108
109
110
111
112
3+4 Methylphenol (cresol, m+p) (ug/kg)


Box and Whisker Plot
IQR
Q1
Q3
WL
WH
Median
102
104
106
108
110
112
114
3+4 Methylphenol (cresol, m+p) (ug/kg)
Q1 = 1st Quartile (25th percentile)
Q3 = 3rd Quartile (75th percentile)
WL = Smallest value > Q1-1.5*IQR
WH = Largest value < Q3+1.5*IQR
IQR = Interquartile range (Q3–Q1)
+ = Mean



For more information on these three plots consult Guidance for Data Quality Assessment, EPA QA/G-9, pgs 2.3-1 through 2.3-12. (http://www.epa.gov/quality/qa-docs.html).

Tests for 3+4 Methylphenol (cresol, m+p)
A goodness-of-fit test was performed to test whether the data set had been drawn from an underlying normal distribution. The Shapiro-Wilk (SW) test was used to test the null hypothesis that the data are normally distributed. The test was conducted at the 5% significance level, i.e., the probability the test incorrectly rejects the null hypothesis was set at 0.05.

NORMAL DISTRIBUTION TEST	
Shapiro-Wilk Test Statistic	0.8482
Shapiro-Wilk 5% Critical Value	0.905

The calculated SW test statistic is less than the 5% Shapiro-Wilk critical value, so we can reject the hypothesis that the data are normal, or in other words the data do not appear to follow a normal distribution at the 5% level of significance. The Q-Q plot displayed above should be used to further assess the normality of the data.

Upper Confidence Limit on the True Mean
Two methods were used to compute the upper confidence limit (UCL) on the mean. The first is a parametric method that assumes a normal distribution. The second is the Chebyshev method, which requires no distributional assumption.

UCLs ON THE MEAN	
95% Parametric UCL	107.14
95% Non-Parametric (Chebyshev) UCL	108.86

Because the data do not appear to be normally distributed according to the goodness-of-fit test performed above, the non-parametric UCL (108.9) may be a more accurate upper confidence limit on the true mean.

MARSSIM Sign Test

The Sign test was performed in accordance with the guidance given in section 8.3.2 of MARSSIM. Each measurement was subtracted from the action level to obtain *n* differences $d_i = AL - X_i$. Any differences of zero were discarded from consideration and the sample size was reduced accordingly. The test statistic S+ was calculated by counting the positive differences. S+ was then compared with the critical value *k*, which was obtained from Table I.3 in Appendix I of MARSSIM.

If $S+ > k$, then the null hypothesis is rejected.

MARSSIM SIGN TEST		
Test Statistic S+	**95% Critical Value**	**Null Hypothesis**
20	14	Reject

The test rejected the null hypothesis for 3+4 methylphenol (cresol, m+p) that the mean value at the site exceeds the threshold, so conclude the **site is clean.**

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Appendix K

Third-Party Data Validation Report

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CHPRC - REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
01/13/2016	
3. Project No.	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
VSR16-002		Scot Fitzgerald	Sample Management and Reporting	MO277/373-7495

17. Comment Submittal Approval	10. Agreement With Indicated Comment Disposition(s)	11. CLOSED
01/13/2016 — Date Scot Fitzgerald — Organization Manager (optional) (print and sign)	Date Reviewer/Point of Contact (print and sign) Author/Originator (print and sign)	01/13/2016 — Date Reviewer/Point of Contact (print and sign) Scot Fitzgerald — Author/Originator (print and sign)

12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if **NOT** accepted)	16. Status
1	No issues noted.					

A-6004-835 (REV 1)

CHPRC - REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
January 13, 2016	
3. Project No.	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
VSR16-002		Jadie Kaas	SGRP QA	MO 2216 / 376-2949

17. Comment Submittal Approval	10. Agreement With Indicated Comment Disposition(s)	11. CLOSED
Jadie Kaas 1/13/16 Date Jadie Kaas Organization Manager (optional) (print and sign)	Date Reviewer/Point of Contact (print and sign) Author/Originator (print and sign)	1/13/16 Date Reviewer/Point of Contact (print and sign) Jadie Kaas Jadie Kaas Author/Originator (print and sign)

12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if **NOT** accepted)	16. Status
1	No issues noted					

A-6004-835 (REV 1)

ANALYTICAL QUALITY ASSOCIATES, INC.

PO Box 21987
Albuquerque, NM 87154
1-888-678-5447
www.aqainc.net

Data Validation Report for CH2M Hill Plateau Remediation Company

VSR16-002
Project Waste & Fuels

Chemical Validation - Level C

Validation Performed By: Eyda Hergenreder **Date:** 01-12-2016

Technical Review By: Ellen McEntee **Date:** 01-12-2016

Quality Review By: Mary A. Donivan **Date:** 01-14-2016
Mary Donivan
Quality Assurance Manager

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Semi-Volatile Organics

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Date: 12 January 2016
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: Waste & Fuels
Subject: Volatile Organics - Sample Data Groups (SDGs) GEL385607, GEL385608 and SL2012

INTRODUCTION

This memorandum presents the results of data validation for SDGs GEL385607 and GEL385608 prepared by GEL Laboratories LLC and SDG SL2012 prepared by TestAmerica Laboratories Inc. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B32HT0	11/12/15	Soil	C	8260C
B32HX2	11/12/15	Soil	C	8260C
B32HW0	11/12/15	Soil	C	8260C
B32HY4	11/12/15	Soil	C	8260C
B32HX4	11/12/15	Soil	C	8260C
B32HR0	11/12/15	Soil	C	8260C
B32HV8	11/12/15	Soil	C	8260C
B32HV2	11/12/15	Soil	C	8260C
B32HX8	11/12/15	Soil	C	8260C
B32HR4	11/12/15	Soil	C	8260C
B32HX6	11/12/15	Soil	C	8260C
B32HW2	11/12/15	Soil	C	8260C
B32HP6	11/12/15	Soil	C	8260C
B32HY2	11/12/15	Soil	C	8260C
B32HT2	11/12/15	Soil	C	8260C
B32HY0	11/12/15	Soil	C	8260C
H32HV4	11/12/15	Soil	C	8260C
B32HV6	11/12/15	Soil	C	8260C
B32HR2	11/12/15	Soil	C	8260C
B32J13	11/12/15	Soil	C	8260C
B32J11	11/12/15	Soil	C	8260C
B32J15	11/12/15	Soil	C	8260C
B32HR6	11/12/15	Soil	C	8260C
B32HX0	11/12/15	Soil	C	8260C
B32HR8	11/12/15	Soil	C	8260C
B32HY6	11/12/15	Soil	C	8260C
B32HV0	11/12/15	Soil	C	8260C
B32HP2	11/12/15	Soil	C	8260C
B32HP4	11/12/15	Soil	C	8260C
B32HT6	11/12/15	Soil	C	8260C
B32HT4	11/12/15	Soil	C	8260C

B32HW6	11/12/15	Soil	C	8260C
B32HW8	11/12/15	Soil	C	8260C
B32HP8	11/12/15	Soil	C	8260C
B32HW4	11/12/15	Soil	C	8260C
B32HY8	11/12/15	Soil	C	8260C
B32J00	11/12/15	Soil	C	8260C
B32HT9	11/12/15	Soil	C	8260C

Data validation was conducted in accordance with the CHPRC validation statement of work and the 207-A South Retention Basin (S-2-7) Closure Plan, DOE/RL-2005-89, Rev. 2 Draft (SAP). Appendices 1 through 4 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Data Validation Supporting Documentation
Appendix 4. Additional Documentation Requested by Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for volatile organics are analysis within 14 days of sample collection. Sample preservation requires freezing to < -7 degrees Celsius and >-20 degrees Celsius.

The samples were analyzed within the prescribed holding time and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

The methylene chloride result for trip blank sample B32HV6 was a detect > the method detection limit but < the reporting limit. The methylene chloride result for sample B32HW2 was a detect <2X the reporting limit and based on professional judgment, should be qualified as non-detect at the reporting limit “6.73U.” All other field sample results were non-detects, therefore, were not qualified.

Field Blanks

All field blank results were acceptable.

Equipment Blanks

No equipment blanks were submitted for validation.

- **Accuracy**

Accuracy is evaluated by reviewing surrogate results, matrix spike sample results, and laboratory control sample results. According to the SAP, the matrix spike accuracy limits are ±30% and the laboratory control sample accuracy limits are ones specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable with the following exception.

For SDG GEL385607, the 1,2-dichloroethane-d4 surrogate recoveries for samples B32HT2 and B32HV6 were above the upper acceptance limit. The methylene chloride result for sample B32HV6 was a detect and should be qualified as an estimate and flagged "J." The acetone result for sample B32HV6 and all results for sample B32HT2 were non-detects and were not qualified.

For SDG GEL385608, the 1,2-dichloroethane-d4 surrogate recovery for sample B32J15 was above the upper acceptance limit. All sample results were non-detects and were not qualified.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

All LCS/LCSD recoveries were acceptable.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, LCS/LCSD results, field duplicate sample results and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%.

MS/MSD Samples

All MS/MSD RPD values were acceptable.

LCS/LCSD Samples

All LCS/LCSD RPD values were acceptable

Field Duplicate Samples

All field duplicate results were acceptable.

Field Split Samples

All field split results were acceptable.

- **Internal Standards**

Internal standard performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. Internal standards are added to all samples, including QC samples, prior to analysis.

Internal standards data was not included in the data package. Sample results should not be qualified based on this.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs.

- **Completeness**

SDGs GEL385607, GEL385608 and SL2012 were submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due to high surrogate recovery and blank contamination. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

GRP-GD-003, Rev. 1, Change 0, *Data Validation for Chemical Analyses*, July 2012.

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

DOE/RL-2005-89, Rev. 2 Draft, *207-A South Retention Basin (S-2-7) Closure Plan*.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for, but was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the RL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J+** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J-** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Volatile Organics Data Qualification Summary			
SDGs: GEL385607, GEL385608 SL2012	Reviewer: AQA	Project: Waste & Fuels	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Methylene chloride	6.73U	B32HW2	Blank contamination
	J	B32HV6	Surrogate recovery above acceptance limit

Comments: None

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Appendix 3

Data Validation Supporting Documentation

Appendix A - Chemical Data Validation Checklist

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: Waste & Fuels			DATA PACKAGE: VSR16-002		
VALIDATOR: Eyda Hergenreder		LAB: GEL, TestAmerica		DATE: 01/12/16	
			SDG: GEL385607, GEL385608, SL2012		
ANALYSES PERFORMED					
SW-846 8260 X		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX Soil					
GEL385607: B32HT0, B32HX2, B32HW0, B32HY4, B32HX4, B32HR0, B32HV8, B32HV2, B32HX8, B32HR4, B32HX6, B32HW2, B32HP6, B32HY2, B32HT2, B32HY0, B32HV4, B32HV6, B32HR2, B32J13					
GEL385608: B32J11, B32J15, B32HR6, B32HX0, B32HR8, B32HY6, B32HV0, B32HP2, B32HP4, B32HT6, B32HT4, B32HW6, B32HW8, B32HP8, B32HW4, B32HY8, B32J00					
SL2012: B32HT9					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:_____

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

Continuing calibrations acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

SDG GEL385607: trip blank sample B32HV6 - methylene chloride 2.23 ug/kg

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed?	Yes	No	N/A
Surrogate/system monitoring compound recoveries acceptable?	Yes	No	N/A
Surrogates traceable? (Levels D, E)	Yes	No	N/A
Surrogates expired? (Levels D, E)	Yes	No	N/A
MS/MSD samples analyzed?	Yes	No	N/A
MS/MSD results acceptable?	Yes	No	N/A
MS/MSD standards NIST traceable? (Levels D, E)	Yes	No	N/A
MS/MSD standards? (Levels D, E)	Yes	No	N/A
LCS/BSS samples analyzed?	Yes	No	N/A
LCS/BSS results acceptable?	Yes	No	N/A
Standards traceable? (Levels D, E)	Yes	No	N/A
Standards expired? (Levels D, E)	Yes	No	N/A
Transcription/calculation errors? (Levels D, E)	Yes	No	N/A
Performance audit sample(s) analyzed?	Yes	No	N/A
Performance audit sample results acceptable?	Yes	No	N/A

Comments:

SDG GEL385607:
Surrogate DCED4: B32HT2 - 129%; B32HV6 - 125%

SDG GEL385608
Surrogate DCED4: B32J15 - 125%

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed?.....Yes No N/A

MS/MSD RPD values acceptable?.....Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) .....Yes No N/A

MS/MSD standards expired? (Levels D, E).....Yes No N/A

LCS/LCSD duplicates run due to insufficient sample material?.....Yes No N/A

Field duplicate RPD values acceptable?.....Yes No N/A

Field split RPD values acceptable?.....Yes No N/A

Transcription/calculation errors? (Levels D, E).....Yes No N/A

Comments:_____

_____

_____

_____

_____

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed?.....Yes No N/A

Internal standard areas acceptable? .....Yes No N/A

Internal standard retention times acceptable?.....Yes No N/A

Standards traceable?.....Yes No N/A

Standards expired?.....Yes No N/A

Transcription/calculation errors?.....Yes No N/A

Comments:_____

_____

_____

7. HOLDING TIMES (all levels)

Samples properly preserved?.....(Yes) No N/A

Sample holding times acceptable?.....(Yes) No N/A

Comments:_____

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E).....Yes No (N/A)

Compound quantitation acceptable? (Levels D, E).....Yes No (N/A)

Results reported for all requested analyses?.....(Yes) No N/A

Results supported in the raw data? (Levels D, E).....Yes No (N/A)

Samples properly prepared? (Levels D, E).....Yes No (N/A)

Laboratory properly identified and coded all TIC? (Levels D, E).....Yes No (N/A)

Detection limits meet RDL?.....(Yes) No N/A

Transcription/calculation errors? (Levels D, E).....Yes No (N/A)

Comments:_____

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments:_____

_____

_____

_____

_____

Comments (attach additional sheets as necessary):_____

_____

_____

_____

_____

_____

_____

_____

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Appendix 4

Additional Documentation Requested By Client

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 9, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **385607**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1525430										
QC1203438749 LCS										
Acetone	250			232	ug/kg		93	(70%-130%)	CDS1	11/21/15 07:13
Methylene chloride	50.0			48.8	ug/kg		98	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			51.1	ug/L		102	(81%-124%)		
**Bromofluorobenzene	50.0			50.4	ug/L		101	(70%-130%)		
**Toluene-d8	50.0			49.7	ug/L		99	(81%-120%)		
QC1203445883 LCS										
Acetone	250			239	ug/kg		95	(70%-130%)		11/22/15 10:09
Methylene chloride	50.0			49.3	ug/kg		99	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			52.1	ug/L		104	(81%-124%)		
**Bromofluorobenzene	50.0			48.2	ug/L		96	(70%-130%)		
**Toluene-d8	50.0			50.4	ug/L		101	(81%-120%)		
QC1203438748 MB										
Acetone			U	3.00	ug/kg					11/21/15 08:14
Methylene chloride			U	1.60	ug/kg					
**1,2-Dichloroethane-d4	50.0			54.9	ug/L		110	(81%-124%)		
**Bromofluorobenzene	50.0			46.8	ug/L		94	(70%-130%)		
**Toluene-d8	50.0			49.7	ug/L		99	(81%-120%)		
QC1203445882 MB										
Acetone			U	3.00	ug/kg					11/22/15 11:40
Methylene chloride			U	1.60	ug/kg					
**1,2-Dichloroethane-d4	50.0			54.5	ug/L		109	(81%-124%)		

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385607**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1525430											
**Bromofluorobenzene	50.0				46.7	ug/L		93	(70%-130%)		
**Toluene-d8	50.0				52.4	ug/L		105	(81%-120%)	CDS1	11/22/15 11:40
QC1203438750 385607001 PS											
Acetone	250	U	0.00		273	ug/L		109	(70%-130%)		11/21/15 17:22
Methylene chloride	50.0	U	0.00		43.0	ug/L		86	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		59.4		53.4	ug/L		107	(81%-124%)		
**Bromofluorobenzene	50.0		46.8		45.8	ug/L		92	(70%-130%)		
**Toluene-d8	50.0		53.5		51.2	ug/L		102	(81%-120%)		
QC1203438751 385607001 PSD											
Acetone	250	U	0.00		258	ug/L	6	103	(0%-20%)		11/21/15 17:53
Methylene chloride	50.0	U	0.00		43.7	ug/L	2	87	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		59.4		52.9	ug/L		106	(81%-124%)		
**Bromofluorobenzene	50.0		46.8		47.2	ug/L		94	(70%-130%)		
**Toluene-d8	50.0		53.5		50.7	ug/L		101	(81%-120%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385607**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

o Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC

Report Date: December 9 2015

Page 1 of 2

Volatile

Surrogate Recovery Report

SDG Number: GEL385607

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203438749	LCS for batch 1525429	102	99	101
1203438748	MB for batch 1525429	110	99	94
385607001	B32HT0	119	107	94
385607002	B32HX2	119	110	100
385607003	B32HW0	118	112	95
385607004	B32HY4	117	110	96
385607005	B32HX4	115	110	94
385607007	B32HV8	119	113	100
385607008	B32HV2	121	115	97
385607009	B32HX8	120	109	91
385607010	B32HR4	119	114	91
385607011	B32HX6	116	113	92
385607013	B32HP6	113	110	92
385607014	B32HY2	120	115	93
385607016	B32HY0	114	108	94
385607017	B32HV4	115	110	91
1203438750	B32HT0PS	107	102	92
1203438751	B32HT0PSD	106	101	94
1203445883	LCS for batch 1525429	104	101	96
1203445882	MB for batch 1525429	109	105	93
385607006	B32HR0	119	105	94
385607012	B32HW2	118	105	93
385607015	B32HT2	129 *	120	108
385607019	B32HR2	118	111	95

DCED4 = 1,2-Dichloroethane-d4 (81%-124%)
TOL = Toluene-d8 (81%-120%)
BFB = Bromofluorobenzene (70%-130%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

GEL Laboratories LLC

Report Date: December 9 2015

Volatile

Surrogate Recovery Report

SDG Number: GEL385607

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
385607020	B32J13	120	112	97
385607018	B32HV6	125 *	118	100

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(81%-124%)
TOL	= Toluene-d8	(81%-120%)
BFB	= Bromofluorobenzene	(70%-130%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385608**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS										
Batch 1525386										
**2-Fluorobiphenyl	1730	1320		1170	ug/kg		68	(15%-110%)	JLD1	11/24/15 18:24
**2-Fluorophenol	3450	2750		2520	ug/kg		73	(10%-115%)		
**Nitrobenzene-d5	1730	1270		1160	ug/kg		67	(13%-112%)		
**Phenol-d5	3450	2770		2600	ug/kg		75	(15%-117%)		
**p-Terphenyl-d14	1730	1450		1590	ug/kg		92	(24%-141%)		
QC1203438687 385608018 MSD										
m,p-Cresols	1730	ND	U	1520	ug/kg	0	88	(0%-30%)		11/24/15 18:54
o-Cresol	1730	ND	U	1330	ug/kg	0	77	(0%-30%)		
**2,4,6-Tribromophenol	3450	3060		3030	ug/kg		88	(12%-129%)		
**2-Fluorobiphenyl	1730	1320		1160	ug/kg		67	(15%-110%)		
**2-Fluorophenol	3450	2750		2500	ug/kg		72	(10%-115%)		
**Nitrobenzene-d5	1730	1270		1140	ug/kg		66	(13%-112%)		
**Phenol-d5	3450	2770		2570	ug/kg		74	(15%-117%)		
**p-Terphenyl-d14	1730	1450		1610	ug/kg		93	(24%-141%)		
Volatile-GC/MS										
Batch 1524349										
QC1203436105 LCS										
Acetone	250			215	ug/kg		86	(70%-130%)	CDS1	11/18/15 12:15
Methylene chloride	50.0			47.7	ug/kg		95	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			50.4	ug/L		101	(81%-124%)		
**Bromofluorobenzene	50.0			52.0	ug/L		104	(70%-130%)		
**Toluene-d8	50.0			48.2	ug/L		96	(81%-120%)		
QC1203438003 LCS										
Acetone	250			244	ug/kg		97	(70%-130%)		11/19/15 08:02

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QC Summary

Workorder: 385608

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1524349											
Methylene chloride	50.0				54.2	ug/kg		108	(70%-130%)		
**1,2-Dichloroethane-d4	50.0				51.0	ug/L		102	(81%-124%)	CDS1	11/19/15 08:02
**Bromofluorobenzene	50.0				51.5	ug/L		103	(70%-130%)		
**Toluene-d8	50.0				50.3	ug/L		101	(81%-120%)		
QC1203436104 MB											
Acetone				U	ND	ug/kg					11/18/15 13:15
Methylene chloride				U	ND	ug/kg					
**1,2-Dichloroethane-d4	50.0				56.6	ug/L		113	(81%-124%)		
**Bromofluorobenzene	50.0				49.0	ug/L		98	(70%-130%)		
**Toluene-d8	50.0				50.4	ug/L		101	(81%-120%)		
QC1203438002 MB											
Acetone				U	ND	ug/kg					11/19/15 09:03
Methylene chloride				U	ND	ug/kg					
**1,2-Dichloroethane-d4	50.0				54.7	ug/L		109	(81%-124%)		
**Bromofluorobenzene	50.0				49.6	ug/L		99	(70%-130%)		
**Toluene-d8	50.0				50.2	ug/L		100	(81%-120%)		
QC1203436106 385355006 PS											
Acetone	250	J	6.61		271	ug/L		106	(70%-130%)		11/18/15 20:49
Methylene chloride	50.0	U	ND		48.1	ug/L		96	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		64.6		50.0	ug/L		100	(81%-124%)		
**Bromofluorobenzene	50.0		57.9		50.0	ug/L		100	(70%-130%)		
**Toluene-d8	50.0		60.2		49.8	ug/L		100	(81%-120%)		
QC1203436107 385355006 PSD											
Acetone	250	J	6.61		240	ug/L	12	93	(0%-20%)		11/18/15 21:20
Methylene chloride	50.0	U	ND		45.9	ug/L	5	92	(0%-20%)		

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QC Summary

Workorder: **385608**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1524349											
**1,2-Dichloroethane-d4	50.0	64.6		49.3	ug/L		99	(81%-124%)	CDS1	11/18/15	21:20
**Bromofluorobenzene	50.0	57.9		49.6	ug/L		99	(70%-130%)			
**Toluene-d8	50.0	60.2		50.2	ug/L		100	(81%-120%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC

Report Date: November 23 2015

Volatile

Surrogate Recovery Report

SDG Number: GEL385608

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203436105	LCS for batch 1524347	101	96	104
1203436104	MB for batch 1524347	113	101	98
385608001	B32J11	124	119	116
385608003	B32HR6	115	105	98
385608004	B32HX0	110	105	101
385608005	B32HR8	116	110	105
385608007	B32HV0	110	106	103
385608008	B32HP2	114	105	96
385608009	B32HP4	116	110	102
1203436106	B33M95PS	100	100	100
1203436107	B33M95PSD	99	100	99
1203438003	LCS for batch 1524347	102	101	103
1203438002	MB for batch 1524347	109	100	99
385608002	B32J15	125 *	117	113
385608006	B32HY6	114	110	99
385608010	B32HT6	115	106	101
385608011	B32HT4	118	109	104
385608012	B32HW6	115	107	101
385608013	B32HW8	116	109	100
385608015	B32HW4	118	112	103
385608016	B32HY8	119	114	107
385608017	B32J00	110	107	96
385608014	B32HP8	111	106	96

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(81%-124%)
TOL	= Toluene-d8	(81%-120%)
BFB	= Bromofluorobenzene	(70%-130%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 160-222534/1-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222534

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	6.5	U	20	6.5	ug/Kg		11/18/15 06:49	11/18/15 09:03	1
Methylene Chloride	1.6	U	5.0	1.6	ug/Kg		11/18/15 06:49	11/18/15 09:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*59 - 150*	*11/18/15 06:49*	*11/18/15 09:03*	*1*
Dibromofluoromethane (Surr)	*91*		*53 - 143*	*11/18/15 06:49*	*11/18/15 09:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*67 - 132*	*11/18/15 06:49*	*11/18/15 09:03*	*1*
Toluene-d8 (Surr)	*99*		*74 - 135*	*11/18/15 06:49*	*11/18/15 09:03*	*1*

Lab Sample ID: LCS 160-222534/2-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	50.0	54.9		ug/Kg		110	39 - 140
Methylene Chloride	50.0	49.9		ug/Kg		100	76 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*59 - 150*
Dibromofluoromethane (Surr)	*92*		*53 - 143*
1,2-Dichloroethane-d4 (Surr)	*100*		*67 - 132*
Toluene-d8 (Surr)	*99*		*74 - 135*

Lab Sample ID: LCSD 160-222534/3-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	50.0	49.4		ug/Kg		99	39 - 140	11	20
Methylene Chloride	50.0	47.8		ug/Kg		96	76 - 120	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*59 - 150*
Dibromofluoromethane (Surr)	*89*		*53 - 143*
1,2-Dichloroethane-d4 (Surr)	*98*		*67 - 132*
Toluene-d8 (Surr)	*99*		*74 - 135*

Lab Sample ID: 160-14847-2 MS
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	5.5	U	41.9	47.6		ug/Kg		114	54 - 139
Methylene Chloride	1.3	U	41.9	43.0		ug/Kg		102	77 - 123

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*59 - 150*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-14847-2 MS
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	93		53 - 143
1,2-Dichloroethane-d4 (Surr)	105		67 - 132
Toluene-d8 (Surr)	103		74 - 135

Lab Sample ID: 160-14847-2 MSD
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	5.5	U	41.3	48.5		ug/Kg		117	54 - 139	2	20
Methylene Chloride	1.3	U	41.3	45.6		ug/Kg		110	77 - 123	6	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		59 - 150
Dibromofluoromethane (Surr)	95		53 - 143
1,2-Dichloroethane-d4 (Surr)	101		67 - 132
Toluene-d8 (Surr)	100		74 - 135

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-222947/1-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	33	U	330	33	ug/Kg		11/21/15 15:03	11/25/15 15:54	1
3 & 4 Methylphenol	67	U	660	67	ug/Kg		11/21/15 15:03	11/25/15 15:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	78		54 - 102	11/21/15 15:03	11/25/15 15:54	1
2,4,6-Tribromophenol (Surr)	33		47 - 125	11/21/15 15:03	11/25/15 15:54	1
Nitrobenzene-d5 (Surr)	85		44 - 120	11/21/15 15:03	11/25/15 15:54	1
Phenol-d5 (Surr)	85		51 - 104	11/21/15 15:03	11/25/15 15:54	1
Terphenyl-d14 (Surr)	68		59 - 98	11/21/15 15:03	11/25/15 15:54	1
2-Fluorobiphenyl (Surr)	68		59 - 110	11/21/15 15:03	11/25/15 15:54	1

Lab Sample ID: LCS 160-222947/2-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	6670	5240		ug/Kg		79	53 - 97
3 & 4 Methylphenol	6670	5720		ug/Kg		86	58 - 108

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	84		54 - 102
2,4,6-Tribromophenol (Surr)	53		47 - 125

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	12DCE	TOL
Lab Sample ID	Client Sample ID	(59-150)	(53-143)	(67-132)	(74-135)
160-14847-2	B32HT9	116	94	104	99
160-14847-2 MS	B32HT9	117	93	105	103
160-14847-2 MSD	B32HT9	107	95	101	100
LCS 160-222534/2-A	Lab Control Sample	107	92	100	99
LCSD 160-222534/3-A	Lab Control Sample Dup	111	89	98	99
MB 160-222534/1-A	Method Blank	113	91	100	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	TBP	NBZ	PHL	TPH	FBP
Lab Sample ID	Client Sample ID	(54-102)	(47-125)	(44-120)	(51-104)	(59-98)	(59-110)
160-14847-1	B32HT8	89	50	91	92	50	72
160-14847-1 MS	B32HT8	87	60	86	88	69	70
160-14847-1 MSD	B32HT8	89	69	92	89	73	75
LCS 160-222947/2-A	Lab Control Sample	84	53	85	85	69	69
MB 160-222947/1-A	Method Blank	78	33	85	85	68	68

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Date: 12 January 2016
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: Waste & Fuels
Subject: Semivolatile Organics - Sample Data Groups (SDGs) GEL385607, GEL385608 and SL2012

INTRODUCTION

This memorandum presents the results of data validation for SDGs GEL385607 and GEL385608 prepared by GEL Laboratories LLC and SDG SL2012 prepared by TestAmerica Laboratories Inc. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B32HT1	11/12/15	Soil	C	8270
B32HX3	11/12/15	Soil	C	8270
B32HW1	11/12/15	Soil	C	8270
B32HY5	11/12/15	Soil	C	8270
B32HX5	11/12/15	Soil	C	8270
B32HR1	11/12/15	Soil	C	8270
B32HV9	11/12/15	Soil	C	8270
B32HV3	11/12/15	Soil	C	8270
B32HX9	11/12/15	Soil	C	8270
B32HR5	11/12/15	Soil	C	8270
B32HX7	11/12/15	Soil	C	8270
B32HW3	11/12/15	Soil	C	8270
B32HP7	11/12/15	Soil	C	8270
B32HY3	11/12/15	Soil	C	8270
B32HT3	11/12/15	Soil	C	8270
B32HY1	11/12/15	Soil	C	8270
B32HV5	11/12/15	Soil	C	8270
B32HV7	11/12/15	Soil	C	8270
B32HR3	11/12/15	Soil	C	8270
B32J14	11/12/15	Soil	C	8270
B32J12	11/12/15	Soil	C	8270
B32J16	11/12/15	Soil	C	8270
B32HR7	11/12/15	Soil	C	8270
B32HX1	11/12/15	Soil	C	8270
B32HR9	11/12/15	Soil	C	8270
B32HY7	11/12/15	Soil	C	8270
B32HV1	11/12/15	Soil	C	8270
B32HP3	11/12/15	Soil	C	8270
B32HP5	11/12/15	Soil	C	8270
B32HT7	11/12/15	Soil	C	8270

B32HT5	11/12/15	Soil	C	8270
B32HW7	11/12/15	Soil	C	8270
B32HW9	11/12/15	Soil	C	8270
B32HP9	11/12/15	Soil	C	8270
B32HW5	11/12/15	Soil	C	8270
B32HY9	11/12/15	Soil	C	8270
B32HT8	11/12/15	Soil	C	8270

Data validation was conducted in accordance with the CHPRC validation statement of work and the 207-A South Retention Basin (S-2-7) Closure Plan, DOE/RL-2005-89, Rev. 2 Draft (SAP). Appendices 1 through 4 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Data Validation Supporting Documentation
Appendix 4. Additional Documentation Requested by Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for semivolatile organics in soil are extraction within 14 days of sample collection and analysis within 40 days of sample extraction. Sample preservation requires chilling to < 6 degrees Celsius.

The samples were extracted and analyzed within the prescribed holding times and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

All trip blank results were acceptable.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

No equipment blanks were submitted for validation.

- **Accuracy**

Accuracy is evaluated by reviewing surrogate results, matrix spike sample results, and laboratory control sample results. According to the SAP, the matrix spike accuracy limits are ±30% and the laboratory accuracy limits are ones specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

All field duplicate results were acceptable.

Field Split Samples

All field split results were acceptable.

- **Internal Standards**

Internal standard performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. Internal standards are added to all samples, including QC samples, prior to analysis.

Internal standards data was not included in the data package. Sample results should not be qualified based on this.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs.

- **Completeness**

SDGs GEL385607, GEL385608 and SL2012 were submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

None found.

REFERENCES

GRP-GD-003, Rev. 1, Change 0, *Data Validation for Chemical Analyses*, July 2012.

HNF-20433, Rev 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

DOE/RL-2005-89, Rev. 2 Draft, *207-A South Retention Basin (S-2-7) Closure Plan*.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for, but was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the RL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J+** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J-** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Semivolatile Organics Data Qualification Summary			
SDGs: GEL385607, GEL385608, SL2012	Reviewer: AQA	Project: Waste & Fuels	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
SVOCs	None	N/A	N/A

Comments: None

Appendix 3

Data Validation Supporting Documentation

Appendix A - Chemical Data Validation Checklist

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: Waste & Fuels			DATA PACKAGE: VSR16-002		
VALIDATOR: Eyda Hergenreder		LAB: GEL, TestAmerica		DATE: 01/12/16	
			SDG: GEL385607, GEL385608, SL2012		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270 X		SW-846 8270 (TCLP)
SAMPLES/MATRIX Soil					
GEL385607: B32HT1, B32HX3, B32HW1, B32HY5, B32HX5, B32HR1, B32HV9, B32HV3, B32HX9, B32HR5, B32HX7, B32HW3, B32HP7, B32HY3, B32HT3, B32HY1, B32HV5, B32HV7, B32HR3, B32J14					
GEL385608: B32J12, B32J16, B32HR7, B32HX1, B32HR9, B32HY7, B32HV1, B32HP3, B32HP5, B32HT7, B32HT5, B32HW7, B32HW9, B32HP9, B32HW5, B32HY9					
SL2012: B32HT8					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:_____

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

Continuing calibrations acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:_____

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:_____

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed?.....Yes No N/A

Surrogate/system monitoring compound recoveries acceptable? .....Yes No N/A

Surrogates traceable? (Levels D, E).....Yes No N/A

Surrogates expired? (Levels D, E).....Yes No N/A

MS/MSD samples analyzed?.....Yes No N/A

MS/MSD results acceptable? .....Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) .....Yes No N/A

MS/MSD standards? (Levels D, E).....Yes No N/A

LCS/BSS samples analyzed?.....Yes No N/A

LCS/BSS results acceptable?.....Yes No N/A

Standards traceable? (Levels D, E).....Yes No N/A

Standards expired? (Levels D, E).....Yes No N/A

Transcription/calculation errors? (Levels D, E).....Yes No N/A

Performance audit sample(s) analyzed? .....Yes No N/A

Performance audit sample results acceptable?.....Yes No N/A

Comments:_____

_____

_____

_____

_____

_____

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed?.....Yes No N/A

MS/MSD RPD values acceptable?.....Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) .....Yes No N/A

MS/MSD standards expired? (Levels D, E).....Yes No N/A

LCS/LCSD duplicates run due to insufficient sample material?.....Yes No N/A

Field duplicate RPD values acceptable?.....Yes No N/A

Field split RPD values acceptable?.....Yes No N/A

Transcription/calculation errors? (Levels D, E).....Yes No N/A

Comments:_____

_____

_____

_____

_____

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed?.....Yes No N/A

Internal standard areas acceptable? .....Yes No N/A

Internal standard retention times acceptable?.....Yes No N/A

Standards traceable?.....Yes No N/A

Standards expired?.....Yes No N/A

Transcription/calculation errors?.....Yes No N/A

Comments:_____

_____

_____

7. HOLDING TIMES (all levels)

Samples properly preserved?.....(Yes) No N/A

Sample holding times acceptable?.....(Yes) No N/A

Comments:_____

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E).....Yes No (N/A)

Compound quantitation acceptable? (Levels D, E).....Yes No (N/A)

Results reported for all requested analyses?.....(Yes) No N/A

Results supported in the raw data? (Levels D, E).....Yes No (N/A)

Samples properly prepared? (Levels D, E).....Yes No (N/A)

Laboratory properly identified and coded all TIC? (Levels D, E).....Yes No (N/A)

Detection limits meet RDL?.....(Yes) No N/A

Transcription/calculation errors? (Levels D, E).....Yes No (N/A)

Comments:_____

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed?	Yes	No	N/A
GPC check performed?	Yes	No	N/A
GPC check recoveries acceptable?	Yes	No	N/A
GPC calibration performed?	Yes	No	N/A
GPC calibration check performed?	Yes	No	N/A
GPC calibration check retention times acceptable?	Yes	No	N/A
Check/calibration materials traceable?	Yes	No	N/A
Check/calibration materials Expired?	Yes	No	N/A
Analytical batch QC given similar cleanup?	Yes	No	N/A
Transcription/Calculation Errors?	Yes	No	N/A

Comments:_____

Comments (attach additional sheets as necessary):_____

Page 49 of 59

Appendix 4

Additional Documentation Requested By Client

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 24, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington
Contact: **Mr. Scot Fitzgerald**

Workorder: **385607**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1524491											
QC1203436451 LCS											
m,p-Cresols	1670				1350	ug/kg		81	(41%-127%)	JMB3	11/23/15 17:21
o-Cresol	1670				1240	ug/kg		75	(40%-111%)		
**2,4,6-Tribromophenol	3330				3180	ug/kg		95	(12%-129%)		
**2-Fluorobiphenyl	1670				1190	ug/kg		72	(15%-110%)		
**2-Fluorophenol	3330				2330	ug/kg		70	(10%-115%)		
**Nitrobenzene-d5	1670				1260	ug/kg		76	(13%-112%)		
**Phenol-d5	3330				2340	ug/kg		70	(15%-117%)		
**p-Terphenyl-d14	1670				1370	ug/kg		82	(24%-141%)		
QC1203436450 MB											
m,p-Cresols				U	99.8	ug/kg					11/23/15 16:50
o-Cresol				U	99.8	ug/kg					
**2,4,6-Tribromophenol	3330				2960	ug/kg		89	(12%-129%)		
**2-Fluorobiphenyl	1660				1420	ug/kg		85	(15%-110%)		
**2-Fluorophenol	3330				2530	ug/kg		76	(10%-115%)		
**Nitrobenzene-d5	1660				1560	ug/kg		93	(13%-112%)		
**Phenol-d5	3330				2640	ug/kg		79	(15%-117%)		
**p-Terphenyl-d14	1660				1400	ug/kg		84	(24%-141%)		
QC1203436452 385607021 MS											
m,p-Cresols	1800	U	108		1590	ug/kg		88	(29%-130%)		11/23/15 18:22
o-Cresol	1800	U	108		1480	ug/kg		82	(28%-114%)		
**2,4,6-Tribromophenol	3610		3360		3650	ug/kg		101	(12%-129%)		

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385607**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1524491											
**2-Fluorobiphenyl	1800		1490		1420	ug/kg		79	(15%-110%)	JMB3	11/23/15 18:22
**2-Fluorophenol	3610		2580		2710	ug/kg		75	(10%-115%)		
**Nitrobenzene-d5	1800		1580		1500	ug/kg		83	(13%-112%)		
**Phenol-d5	3610		2710		2760	ug/kg		76	(15%-117%)		
**p-Terphenyl-d14	1800		1570		1660	ug/kg		92	(24%-141%)		
QC1203436453 385607021 MSD											
m,p-Cresols	1810	U	108		1650	ug/kg	4	91	(0%-30%)		11/23/15 18:53
o-Cresol	1810	U	108		1510	ug/kg	2	84	(0%-30%)		
**2,4,6-Tribromophenol	3610		3360		3780	ug/kg		105	(12%-129%)		
**2-Fluorobiphenyl	1810		1490		1500	ug/kg		83	(15%-110%)		
**2-Fluorophenol	3610		2580		2820	ug/kg		78	(10%-115%)		
**Nitrobenzene-d5	1810		1580		1590	ug/kg		88	(13%-112%)		
**Phenol-d5	3610		2710		2870	ug/kg		79	(15%-117%)		
**p-Terphenyl-d14	1810		1570		1680	ug/kg		93	(24%-141%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385607**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
o	Analyte failed to recover within LCS limits (0rganics only)

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC

Report Date: November 24 2015

Semi-Volatile

Surrogate Recovery Report

SDG Number: GEL385607

Matrix Type: SOLID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203436450	MB for batch 1524489	76	79	93	85	89	84
1203436451	LCS for batch 1524489	70	70	76	72	95	82
385607021	B32HT1	71	75	87	83	93	87
1203436452	B32HT1MS	75	76	83	79	101	92
1203436453	B32HT1MSD	78	79	88	83	105	93
385607022	B32HX3	69	72	85	77	87	87
385607023	B32HW1	77	80	92	83	97	78
385607024	B32HY5	69	73	86	81	93	80
385607025	B32HX5	70	73	85	77	89	76
385607026	B32HR1	67	69	77	73	83	79
385607027	B32HV9	77	79	89	83	99	77
385607028	B32HV3	65	69	78	74	82	78
385607029	B32HX9	76	78	94	85	90	84
385607030	B32HR5	74	79	92	84	89	80
385607031	B32HX7	71	75	84	77	84	81
385607032	B32HW3	73	78	88	84	95	85
385607033	B32HP7	69	73	88	80	79	79
385607034	B32HY3	70	73	83	76	81	90
385607035	B32HT3	69	73	80	75	80	80
385607036	B32HY1	51	54	58	56	71	79
385607037	B32HV5	70	74	87	80	80	86
385607038	B32HV7	70	74	90	85	82	88
385607039	B32HR3	72	76	92	84	83	77
385607040	B32J14	74	76	90	84	91	89

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(10%-115%)
PHL	= Phenol-d5	(15%-117%)
NBZ	= Nitrobenzene-d5	(13%-112%)
FBP	= 2-Fluorobiphenyl	(15%-110%)
TBP	= 2,4,6-Tribromophenol	(12%-129%)
TPH	= p-Terphenyl-d14	(24%-141%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 25, 2015
Page 1 of 3

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington
Contact: **Mr. Scot Fitzgerald**

Workorder: **385608**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1525386											
QC1203438685 LCS											
m,p-Cresols	1670				1440	ug/kg		86	(41%-127%)	JLD1	11/24/15 17:24
o-Cresol	1670				1240	ug/kg		74	(40%-111%)		
**2,4,6-Tribromophenol	3330				2670	ug/kg		80	(12%-129%)		
**2-Fluorobiphenyl	1670				1120	ug/kg		68	(15%-110%)		
**2-Fluorophenol	3330				2460	ug/kg		74	(10%-115%)		
**Nitrobenzene-d5	1670				1180	ug/kg		71	(13%-112%)		
**Phenol-d5	3330				2520	ug/kg		76	(15%-117%)		
**p-Terphenyl-d14	1670				1040	ug/kg		62	(24%-141%)		
QC1203438684 MB											
m,p-Cresols				U	99.9	ug/kg					11/24/15 16:54
o-Cresol				U	99.9	ug/kg					
**2,4,6-Tribromophenol	3330				2420	ug/kg		73	(12%-129%)		
**2-Fluorobiphenyl	1660				1210	ug/kg		72	(15%-110%)		
**2-Fluorophenol	3330				2420	ug/kg		73	(10%-115%)		
**Nitrobenzene-d5	1660				1230	ug/kg		74	(13%-112%)		
**Phenol-d5	3330				2530	ug/kg		76	(15%-117%)		
**p-Terphenyl-d14	1660				1030	ug/kg		62	(24%-141%)		
QC1203438686 385608018 MS											
m,p-Cresols	1730	U	104		1520	ug/kg		88	(29%-130%)		11/24/15 18:24
o-Cresol	1730	U	104		1320	ug/kg		77	(28%-114%)		
**2,4,6-Tribromophenol	3450		3060		2940	ug/kg		85	(12%-129%)		

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **385608**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS											
Batch 1525386											
**2-Fluorobiphenyl	1730		1320		1170	ug/kg		68	(15%-110%)	JLD1	11/24/15 18:24
**2-Fluorophenol	3450		2750		2520	ug/kg		73	(10%-115%)		
**Nitrobenzene-d5	1730		1270		1160	ug/kg		67	(13%-112%)		
**Phenol-d5	3450		2770		2600	ug/kg		75	(15%-117%)		
**p-Terphenyl-d14	1730		1450		1590	ug/kg		92	(24%-141%)		
QC1203438687 385608018 MSD											
m,p-Cresols	1730	U	104		1520	ug/kg	0	88	(0%-30%)		11/24/15 18:54
o-Cresol	1730	U	104		1330	ug/kg	0	77	(0%-30%)		
**2,4,6-Tribromophenol	3450		3060		3030	ug/kg		88	(12%-129%)		
**2-Fluorobiphenyl	1730		1320		1160	ug/kg		67	(15%-110%)		
**2-Fluorophenol	3450		2750		2500	ug/kg		72	(10%-115%)		
**Nitrobenzene-d5	1730		1270		1140	ug/kg		66	(13%-112%)		
**Phenol-d5	3450		2770		2570	ug/kg		74	(15%-117%)		
**p-Terphenyl-d14	1730		1450		1610	ug/kg		93	(24%-141%)		

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.

GEL Laboratories LLC

Report Date: November 25 2015

Semi-Volatile

Surrogate Recovery Report

SDG Number: GEL385608

Matrix Type: SOLID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203438684	MB for batch 1525385	73	76	74	72	73	62
1203438685	LCS for batch 1525385	74	76	71	68	80	62
385608018	B32J12	80	80	74	76	89	84
1203438686	B32J12MS	73	75	67	68	85	92
1203438687	B32J12MSD	72	74	66	67	88	93
385608019	B32J16	89	92	82	84	95	81
385608020	B32HR7	83	87	82	82	91	102
385608021	B32HX1	75	77	73	73	72	91
385608022	B32HR9	80	83	79	79	81	90
385608023	B32HY7	71	74	68	69	72	95
385608024	B32HV1	76	80	75	73	74	93
385608025	B32HP3	74	78	73	74	76	76
385608026	B32HP5	78	82	74	73	77	92
385608027	B32HT7	78	82	78	79	76	89
385608028	B32HT5	76	79	76	76	68	90
385608029	B32HW7	73	77	75	75	66	91
385608030	B32HW9	77	82	78	77	68	95
385608031	B32HP9	79	83	78	78	70	75
385608032	B32HW5	81	86	78	76	75	89
385608033	B32HY9	80	86	80	79	75	87

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(10%-115%)
PHL	= Phenol-d5	(15%-117%)
NBZ	= Nitrobenzene-d5	(13%-112%)
FBP	= 2-Fluorobiphenyl	(15%-110%)
TBP	= 2,4,6-Tribromophenol	(12%-129%)
TPH	= p-Terphenyl-d14	(24%-141%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-14847-2 MS
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	93		53 - 143
1,2-Dichloroethane-d4 (Surr)	105		67 - 132
Toluene-d8 (Surr)	103		74 - 135

Lab Sample ID: 160-14847-2 MSD
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	5.5	U	41.3	48.5		ug/Kg		117	54 - 139	2	20
Methylene Chloride	1.3	U	41.3	45.6		ug/Kg		110	77 - 123	6	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		59 - 150
Dibromofluoromethane (Surr)	95		53 - 143
1,2-Dichloroethane-d4 (Surr)	101		67 - 132
Toluene-d8 (Surr)	100		74 - 135

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-222947/1-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	33	U	330	33	ug/Kg		11/21/15 15:03	11/25/15 15:54	1
3 & 4 Methylphenol	67	U	660	67	ug/Kg		11/21/15 15:03	11/25/15 15:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	78		54 - 102	11/21/15 15:03	11/25/15 15:54	1
2,4,6-Tribromophenol (Surr)	33		47 - 125	11/21/15 15:03	11/25/15 15:54	1
Nitrobenzene-d5 (Surr)	85		44 - 120	11/21/15 15:03	11/25/15 15:54	1
Phenol-d5 (Surr)	85		51 - 104	11/21/15 15:03	11/25/15 15:54	1
Terphenyl-d14 (Surr)	68		59 - 98	11/21/15 15:03	11/25/15 15:54	1
2-Fluorobiphenyl (Surr)	68		59 - 110	11/21/15 15:03	11/25/15 15:54	1

Lab Sample ID: LCS 160-222947/2-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	6670	5240		ug/Kg		79	53 - 97
3 & 4 Methylphenol	6670	5720		ug/Kg		86	58 - 108

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	84		54 - 102
2,4,6-Tribromophenol (Surr)	53		47 - 125

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-222947/2-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222947

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*85*		*44 - 120*
Phenol-d5 (Surr)	*85*		*51 - 104*
Terphenyl-d14 (Surr)	*69*		*59 - 98*
2-Fluorobiphenyl (Surr)	*69*		*59 - 110*

Lab Sample ID: 160-14847-1 MS
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: B32HT8
Prep Type: Total/NA
Prep Batch: 222947

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	34	U	6900	5480		ug/Kg	☼	79	46 - 98
3 & 4 Methylphenol	69	U	6900	5940		ug/Kg	☼	86	48 - 111

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*87*		*54 - 102*
2,4,6-Tribromophenol (Surr)	*60*		*47 - 125*
Nitrobenzene-d5 (Surr)	*88*		*44 - 120*
Phenol-d5 (Surr)	*88*		*51 - 104*
Terphenyl-d14 (Surr)	*69*		*59 - 98*
2-Fluorobiphenyl (Surr)	*70*		*59 - 110*

Lab Sample ID: 160-14847-1 MSD
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: B32HT8
Prep Type: Total/NA
Prep Batch: 222947

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylphenol	34	U	6900	5660		ug/Kg	☼	82	46 - 98	3	30
3 & 4 Methylphenol	69	U	6900	6080		ug/Kg	☼	88	48 - 111	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*89*		*54 - 102*
2,4,6-Tribromophenol (Surr)	*69*		*47 - 125*
Nitrobenzene-d5 (Surr)	*92*		*44 - 120*
Phenol-d5 (Surr)	*89*		*51 - 104*
Terphenyl-d14 (Surr)	*73*		*59 - 98*
2-Fluorobiphenyl (Surr)	*75*		*59 - 110*

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	12DCE	TOL
Lab Sample ID	Client Sample ID	(59-150)	(53-143)	(67-132)	(74-135)
160-14847-2	B32HT9	116	94	104	99
160-14847-2 MS	B32HT9	117	93	105	103
160-14847-2 MSD	B32HT9	107	95	101	100
LCS 160-222534/2-A	Lab Control Sample	107	92	100	99
LCSD 160-222534/3-A	Lab Control Sample Dup	111	89	98	99
MB 160-222534/1-A	Method Blank	113	91	100	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	TBP	NBZ	PHL	TPH	FBP
Lab Sample ID	Client Sample ID	(54-102)	(47-125)	(44-120)	(51-104)	(59-98)	(59-110)
160-14847-1	B32HT8	89	50	91	92	50	72
160-14847-1 MS	B32HT8	87	60	88	88	69	70
160-14847-1 MSD	B32HT8	89	69	92	89	73	75
LCS 160-222947/2-A	Lab Control Sample	84	53	85	85	69	69
MB 160-222947/1-A	Method Blank	78	33	85	85	68	68

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)
FBP = 2-Fluorobiphenyl (Surr)

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Appendix L

Data Quality Assessment

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Terms

AQA	Analytical Quality Associates, Inc.
CAS	Chemical Abstracts Service
DQA	data quality assessment
EPA	U.S. Environmental Protection Agency
FTB	full trip blank
FXR	field transfer blank
GC/MS	gas chromatography/mass spectroscopy
HEIS	Hanford Environmental Information System
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
MTCA	"Model Toxics Control Act—Cleanup" (WAC 173-340)
N/A	not applicable
PQL	practical quantitation limit
QA	quality assurance
QC	quality control
RCRA	*Resource Conservation Recovery Act of 1976*
RPD	relative percent difference
SDG	sample delivery group
SVOC	semivolatile organic compound
TSD	treatment, storage, and disposal
VOC	volatile organic compound
VSP	Visual Sample Plan

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1 Introduction

This data quality assessment (DQA) report evaluates laboratory data for soil samples collected as part of the *207-A South Retention Basins (S-2-7) Closure Plan*. The purpose of this DQA is to determine whether these data are the right type and of sufficient quality and quantity to support closure decisions.
The information contained in this report follows guidelines for DQAs established by the Soil and Groundwater Remediation Project. These guidelines are based on the U.S. Environmental Protection Agency (EPA) DQA guide (EPA/240/B-06/002, *Data Quality Assessment: A Reviewer's Guide* [EPA QA/G-9R]). The *207-A South Retention Basins (S-2-7) Closure Plan* referenced in this report is included in Part V, Closure Units, of the Hanford *Resource Conservation Recovery Act of 1976* (RCRA) Permit (WA7890008967, *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*).

The 207-A South Retention Basin, located in the 200 East Area of the Hanford Site, is a RCRA treatment, storage, and disposal (TSD) unit undergoing closure. It operated under interim status standards as a surface impoundment that was used for storage of 242-A Evaporator process condensate for sampling and analysis before the condensate was discharged to the 216-A-37-1 Crib for disposal to the soil column. The basin began storage operations in 1977. Discharge to the basin was terminated on April 12, 1989, and the basin has been inactive since that date. The location of the 207-A South Retention Basin is shown in Figure 1.

Under a temporary authorization from the Washington State Department of Ecology, closure of the 207-A South Retention Basin was initiated with removal of the basin structure (Figure 2). After removal of the structure, sampling of the soil was performed to confirm that clean closure standards were met. The purpose of the sampling and analysis was to demonstrate that the soil contamination levels are below the closure performance standards (WAC 173-340, "Model Toxics Control Act—Cleanup" [MTCA]) Method B cleanup levels). Twenty sample locations (207-A-1 through 207-A-20) were identified based on Visual Sample Plan (VSP) software calculations, which determined that a minimum of 20 samples were required to obtain a 95 percent confidence level that the site would not be mistakenly released as clean when it did not meet cleanup contaminant concentration levels. Sample locations were determined using the area-wide grid with a random-start sampling method run in the VSP software.

In addition to the 20 samples analyzed to meet the statistical tests, 12 focused samples were collected and analyzed. Specific quality control (QC) measures are provided in the closure plan.

1.1 Laboratory Information

The samples collected were analyzed at the following laboratories:

- GEL Laboratories, LLC, located in Charleston, South Carolina, performed volatile and semivolatile organic analyses on all soil project data samples.
- Test America, St. Louis, located in St. Louis, Missouri, performed volatile and semivolatile organic analyses on the soil split sample.

Chapters 7, 8, and 9 discuss the analytical data provided by these laboratories.

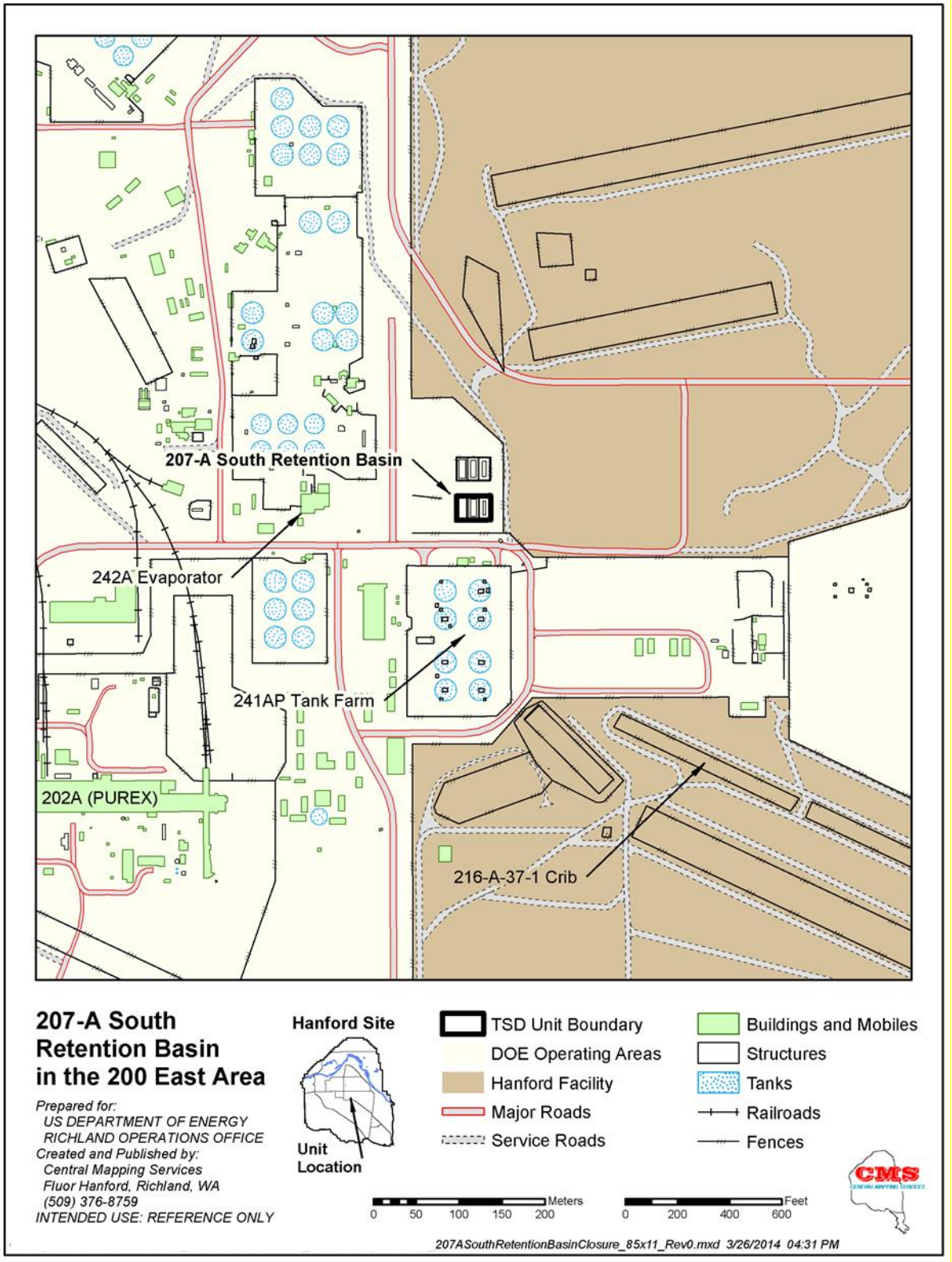

Figure 1. Location of the 207-A South Retention Basin in the 200 East Area

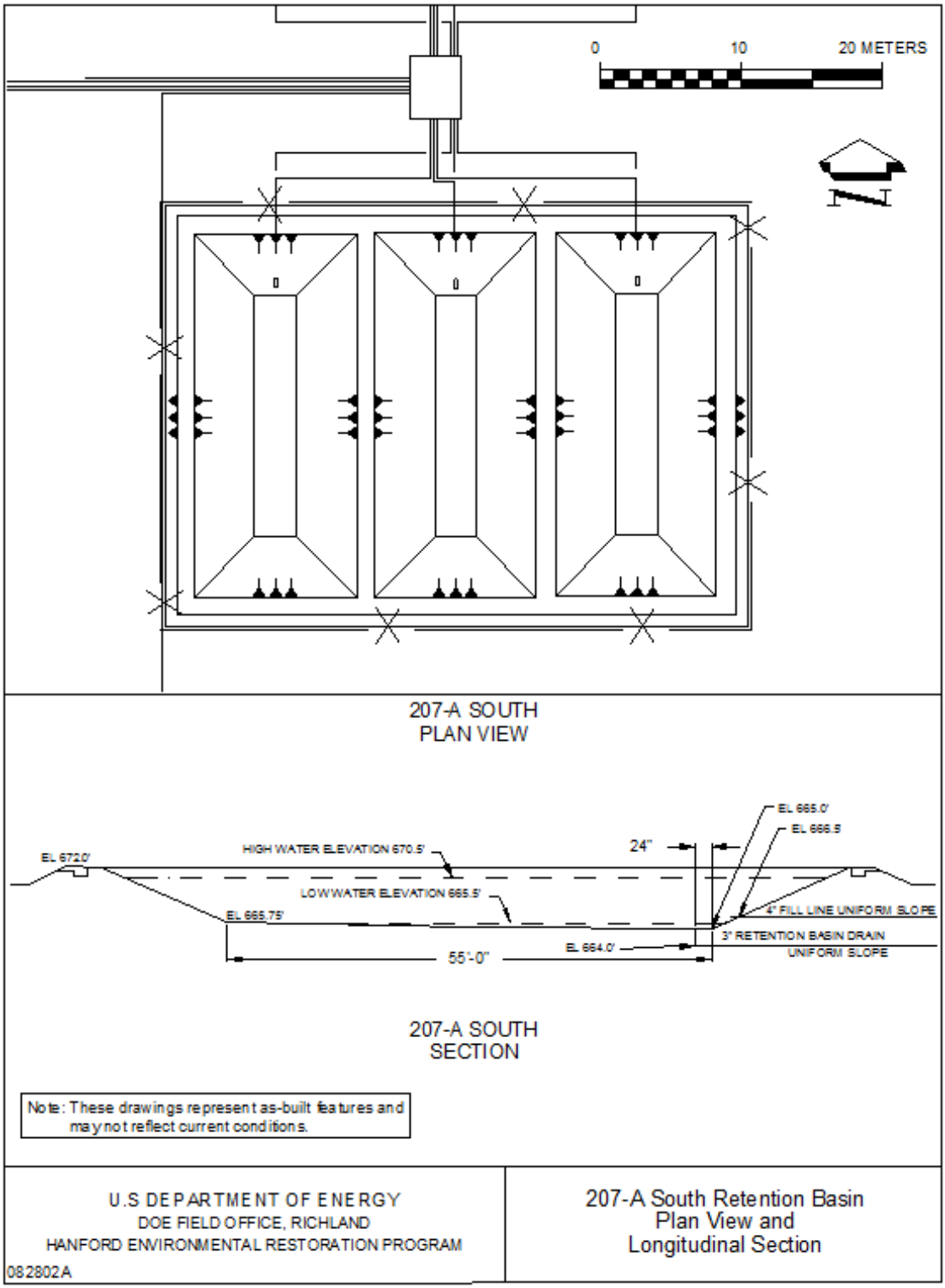

Figure 2. 207-A South Retention Basin in the 200 East Area

1.2 Analytical Methods

Table 1 lists the target analytes sampled for and the analytical methods used. Analytical requests for volatile and semivolatile organic services to be completed by the laboratories are documented on chain-of-custody forms. Analytical results provided by the laboratories are tracked and documented by sample delivery groups (SDGs) in data packages. Sample material designated for a particular analysis by the selected laboratory is tracked by a unique Hanford Environmental Information System (HEIS) database number. Sample results were reported in the HEIS database.

Table 1. Analytical Methods

Target Analytes[a]	Analytical Method
Soil	
Acetone (GC/MS – Volatile Organic Compounds)	SW-846 Method 8260
Methylene chloride (GC/MS – Volatile Organic Compounds)	SW-846 Method 8260
m+p-cresol (3+4 Methylphenol) (GC/MS – Semivolatile Organic Compounds)[b]	SW-846 Method 8270
o-cresol (2-Methylphenol) (GC/MS – Semivolatile Organic Compounds)	SW-846 Method 8270

Reference: SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update V*.

a. Analysis for carbon tetrachloride and chloroform was required if the Hypalon® liner was observed to be degraded at the time of removal. Since the liner was in good condition, they are not target analytes.

b. m-cresol and p-cresol are listed separately in the *207-A South Retention Basins (S-2-7) Closure Plan*; however, the two cannot be separated and are analyzed and reported together.

GC/MS = gas chromatography/mass spectroscopy

® Hypalon is a registered trademark of DuPont de Nemours and Company, Wilmington, Delaware.

2 Sample Location

VSP was used to calculate the number of samples required to reject a null hypothesis in favor of the alternative one, given a selected sampling approach and inputs to the associated equation. Statistical analyses of systematically collected data are valid if a random start to the grid is used. The 207-A South Retention Basin anticipated sampling area dimensions were entered into VSP to determine the sample locations. The triangular grid sampling layout was determined to have an even distribution over the entire soil sampling area, providing the most representative data set.

Soil samples were collected using the area-wide grid (Figure 3) with a random-start sampling method run in the VSP software. The 20 soil samples collected at the VSP locations are shown in Figure 3.
The 12 focus samples collected are also shown in Figure 3 (3 from each of the cells, and 3 from the stockpile area). Two full trip blanks (FTBs), one field transfer blank (FXR), two field duplicates, and one field split sample were also collected and analyzed.

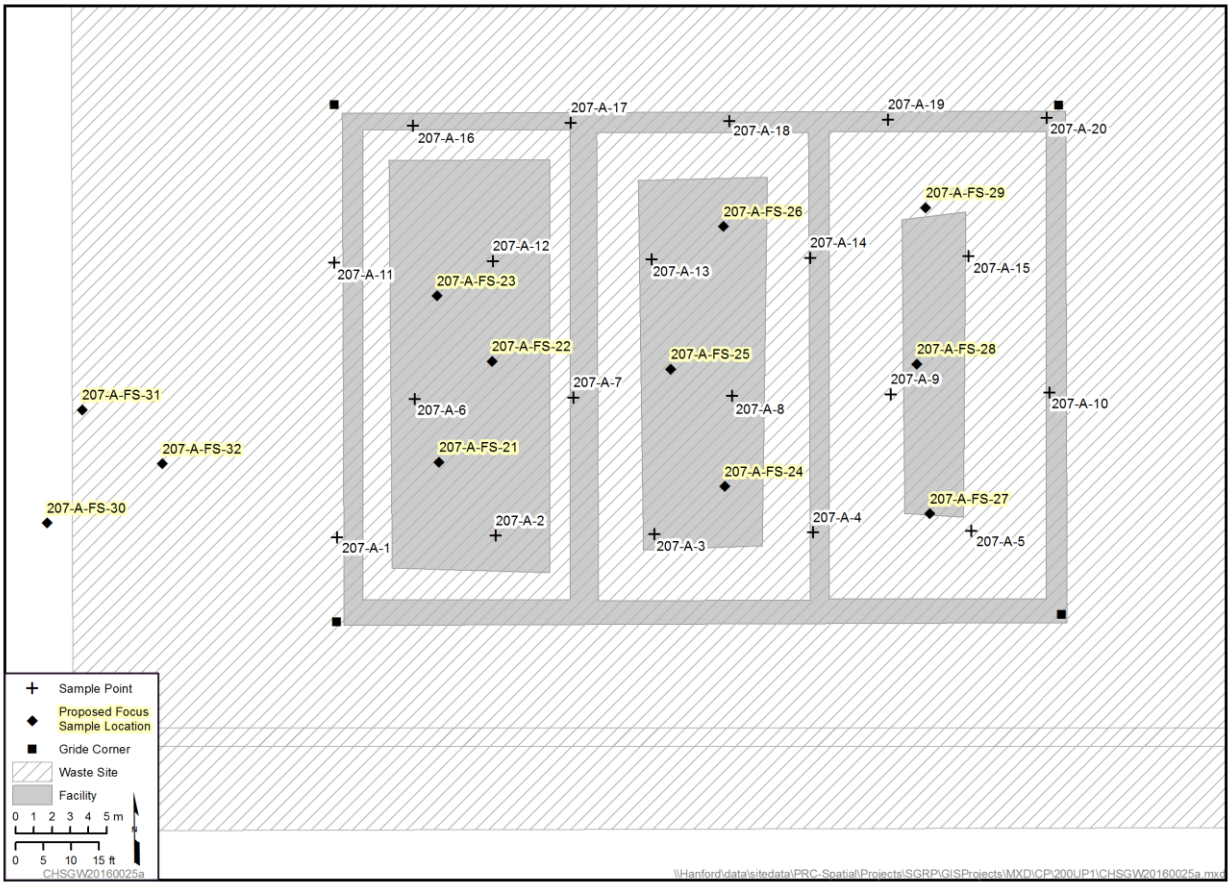

Figure 3. Sample Locations at the 207-A South Retention Basin in the 200 East Area

3 Scope

The DQA process assesses the quality of the entirety of the data collected to determine whether the data are the right type and of sufficient quality and quantity for determining if the soil remaining after removal of the basin structure meets the performance standard for clean closure. This DQA completes the EPA data quality life cycle (planning, implementation, and assessment). The DQA process is not intended to be a definitive analysis of a project or problem. Rather, it provides an initial assessment of the reasonableness of the data that have been generated, based solely on the QC information associated with the data, and not upon the technical interpretations of the data values. This DQA focuses on the characterization data for the organic target analytes collected by the analysis of soil samples from node locations indicated by the VSP software and from the locations of the focused samples. The data are evaluated to determine whether they meet the analytical criteria outlined in the *207-A South Retention Basins (S-2-7) Closure Plan* and are adequate to support decision making.

This DQA was performed in accordance with guidelines for DQAs established by the Soil and Groundwater Remediation Project. These guidelines are based on EPA/240/B-06/002. The DQA methodology includes data verification, data validation, and data usability evaluations.

3.1 Data Verification

Data verification is the process of evaluating the completeness, correctness, conformance, and compliance of a specific data set against the method, procedural, or contractual requirements. It includes confirmation that the specified sampling and analytical requirements have been completed (i.e., verification that the number, type, and location of all samples identified in the *207-A South Retention Basins (S-2-7) Closure Plan* have been collected and that all required measurements and analyses were performed). This evaluation is documented in the completeness section (Chapter 5), which evaluates the sampling design versus field implementation. In addition, verification is performed for field QC and laboratory QC samples and is documented in the field QC and laboratory QC sections (Chapters 8 and 9, respectively).

3.2 Data Validation

Data validation is an analyte- and sample-specific process that extends the evaluation of data beyond method or contractual compliance (i.e., data verification) to determine the analytical quality of a specific data set, typically data in single analytical batches. Data validation is an independent assessment to ensure that the reliability of data is known by the user. Analytical data validation provides a level of assurance, based on technical evaluation, that an analyte is either present or absent. Validation might include verification of required deliverables (e.g., minimum detection limits and practical quantitation limits [PQLs]), verification of instrument calibrations, evaluation of analytical results based on method blanks, recovery of various internal standards, correctness of uncertainty calculations, the identification and quantification of analytes, and the effect of quality deficiencies on the analytical sample data. Third-party validation was performed on a percentage of all project data and is described in Section 7.2.

3.3 Data Usability

The data usability assessment is a determination of the adequacy of the entire data set to support a particular environmental decision and is based upon the verification and validation results.
The assessment relates to the adequacy of the entire data set to support a specific and defined data need. The usability step involves assessing whether the samples collected and the resulting analytical data meet project quality objectives. This evaluation is summarized in the data usability section (Chapter 10).

4 Project Objectives

The purpose of the *207-A South Retention Basins (S-2-7) Closure Plan* is to describe the RCRA closure process for the 207-A South Retention Basin TSD unit. This closure process included the demolition and removal of the basin and soil sampling to verify soil clean closure standards.

For closure strategy purposes, the null hypothesis was used to support the basis for clean closure. A null hypothesis is generally assumed true until evidence indicates otherwise. The null hypothesis, as defined in MTCA (WAC 173-340-200, “Definitions”) for the TSD unit, is that the soil is assumed to be above unrestricted use cleanup levels, commonly called MTCA Method B cleanup levels. Therefore, the closure site is presumed to be contaminated (i.e., there has been release from the unit). Rejection of the null hypothesis means sampling and analysis results of the closure site indicated the soil contains contamination levels below the MTCA Method B cleanup levels. Sampling and analysis was used to determine whether the null hypothesis can be rejected, thereby confirming the underlying soil meets the closure performance standards.

5 Completeness

The *207-A South Retention Basins (S-2-7) Closure Plan* determined that 20 soil samples would be collected at X, Y coordinates determined by VSP. In addition, 12 focus samples were collected, 3 from each of the cells and 3 from the stockpile area. Field QC requirements were set at two FTBs, one FXR, two field duplicates, and one field split sample. Table 2 shows that 100 percent of the samples proposed by the closure plan were collected, and Table 3 indicates that 100 percent of the planned analyses were completed by the laboratories.

Table 2. Sample Design Implementation and Completion Evaluation for the 207-A South Retention Basins Closure Plan

Type of Sample	Number of Sampled Collected	Number Indicated in Closure Plan	Percent of Estimated Number Completed*
Systematic	20	20	100
Focus	12	12	100
Field QC (FTBs, FXR, duplicates, and splits)	6	6	100

Reference: *207-A South Retention Basins (S-2-7) Closure Plan*.

* Completed means successfully collected.

Table 3. Analysis Design Implementation and Completion Evaluation for the 207-A South Retention Basins Closure Plan

Analyte	Analytical Method	Number of Analysis Performed[a]	Number Estimated in Closure Plan[b]	Percent of Estimated Number Completed[c]
Acetone	SW-846 8260	38	38	100
Methylene chloride	SW-846 8260	38	38	100
m+p-cresol (3+4 Methylphenol)[d]	SW-846 8270	37	37	100
o-cresol (2-Methylphenol)	SW-846 8270	37	37	100

References: *207-A South Retention Basins (S-2-7) Closure Plan*.

SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update V*.

a. The number of analyses performed includes systematic, focus, and field QC samples.

b. Estimates for the numbers of samples at each location are presented in the closure plan.

c. Completed means successfully analyzed.

d. m-cresol and p-cresol are listed separately in the closure plan; however, the two cannot be separated and are analyzed and reported together.

6 Data Requirements

6.1 Analytical Requirements

Table 4 includes the analytical performance requirements for laboratory analysis of soil samples collected for the *207-A South Retention Basins (S-2-7) Closure Plan*.

6.2 Laboratory Quality Assurance and Quality Control Requirements

The quality assurance (QA)/QC requirements govern nearly all aspects of analytical laboratory operation, including instrument procurement, maintenance, calibration, and operation. Laboratory requirements for internal QC checks are performed as appropriate for the analytical method at a rate of 1 per sample per SDG or 1 in 20 (5 percent), whichever is more frequent. Laboratory internal QC checks include the following:

- **Method Blanks.** Each analytical batch contains a laboratory method blank (material of composition similar to that of the samples with known/minimal contamination of the analytes of interest) carried through the complete analytical process. The method blank is used to evaluate false-positive results in samples caused by contamination during handling at the laboratory.

- **Matrix Spikes and Surrogates.** For most analyses, a known quantity of representative analytes of interest (matrix spike [MS]) is added to a separate aliquot of a sample from the analytical batch. The known amount added is compared to the actual measured amount to calculate the percent recovery. The recovery percentage of the added MS is used to evaluate analytical accuracy.
  In addition to the MS recovery, surrogate compounds are used to evaluate accuracy in the volatile and semivolatile organic analyses. Surrogate compounds with instrumental responses that are typical of the analytes of interest are added into the blanks, samples, and MSs, and the recovery is evaluated.

- **Analytical Precision.** Separate aliquots removed from the sample containers (duplicate samples) are analyzed for each analytical batch for radionuclides and metals. The duplicate sample results are compared to the original sample results, which are evaluated as relative percent differences (RPDs) and are used to assess analytical precision. Alternately, a matrix spike duplicate (MSD) may be used for assessing precision of metals and organic parameters. For an MSD, a separate aliquot is removed from the same sample container and spiked in the same manner as the MS. The results, not recoveries, from the MS/MSD are used to calculate an RPD and to assess precision.

- **Laboratory Control Samples or QC Reference Samples (Analytical Accuracy).** A laboratory control sample (LCS) may be prepared from an independent standard or from the same standard used for instrument calibration at a concentration within the calibration range. The LCS is taken through all the preparation and analysis steps used in the method. The LCS or QC reference sample measures the accuracy of the analytical process. Depending on how it is introduced into the analysis, the LCS is sometimes referred to as a blank spike sample.

Samples collected in support of the *207-A South Retention Basins (S-2-7) Closure Plan* were analyzed in three SDGs and a total of six batches (three for volatile organic analysis by SW-846 Method 8260, and three for semivolatile organic analysis by SW-846 Method 8270).

Table 4. Soil Analytical Performance Requirements

CAS Number	Analyte	Analytical Method	Closure Performance Standard[a] (mg/kg)			Practical Quantitation Limit (mg/kg)	Accuracy Req't (Percent Recovery)[b]	Precision Req't (Relative Percent Difference)[b]
			Carcinogen	Noncarcinogen	Protection of Groundwater			
108-39-4	m-cresol	SW-846 Method 8270	N/A	4,000	N/A	0.66	±30	±30
95-48-7	o-cresol	SW-846 Method 8270	N/A	4,000	2.33	0.33	±30	±30
106-44-5	p-cresol	SW-846 Method 8270	N/A	8,000	N/A	0.33	±30	±30
75-09-2	Methylene chloride	SW-846 Method 8260	500	480	0.0215[c]	0.005	±30	±30
67-64-1	Acetone	SW-846 Method 8260	N/A	72,000	28.9	0.02	±30	±30

Reference: SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update V*.

a. Closure performance standards are the numeric cleanup levels calculated using unrestricted use exposure assumptions according to WAC 173-340, "Model Toxics Control Act—Cleanup" (MTCA) regulations (WAC 173-340-740, "Unrestricted Land Use Soil Cleanup Standards;" WAC 173-340-747, "Deriving Soil Concentrations for Groundwater Protection;" and WAC 173-340-7490, "Terrestrial Ecological Evaluation Procedures," through WAC 173-340-7494, "Priority Contaminants of Ecological Concern"). These numeric cleanup levels will be calculated according to MTCA Method B (unrestricted use standards). Where both carcinogen and noncarcinogen performance standards are available, the lowest value will be used.

b. Accuracy criteria for associated batch matrix spike percent recoveries. Evaluation based on statistical control of laboratory control samples is also performed. Precision criteria for batch laboratory replicate matrix spike analyses or replicate sample analyses.

c. More stringent of standard MTCA Method B cleanup value for unrestricted land use between soil protective of groundwater with vadose zone at 25ºC and soil protective of groundwater with vadose zone at 13°C.

CAS = Chemical Abstracts Service

N/A = not applicable

6.3 Qualification Flags

During the generation of environmental analytical data, any of several qualification flags may be assigned to an individual result. The HEIS database carries qualification flags applied by three sources: the laboratory, the third-party data validator, or a data user. The tables of data within this report show all of these applied qualification flags. Potential flags and their meanings are provided in Table 5. Flags that were applied by the laboratory to the sample results reported are provided in Table 6. User-defined flags are also provided in Table 6. User-defined flag "A" (chain-of-custody issue) was applied to three samples (B22HW1, B32HY5, and B32HT3). Two chain-of-custody forms for these three samples did not provide complete receipt information by the laboratory (B22HW1 and B32HY5), and one chain-of-custody form did not show relinquishment of samples from the shipper. The laboratory sample receipt and review form for all three samples shows that the samples were received by the laboratory, custody seals were unbroken, and the data for these three samples are accordingly believed to be satisfactory and usable.

Table 5. Qualification Flags

Flag	Definition
Laboratory-Applied Flags	
D	All – Analyte was reported at a secondary dilution factor, typically DF>1 (i.e., the primary preparation required dilution to either bring the analyte within the calibration range or to minimize interference). Required for organics/wetchem if the sample was diluted.
E	(Inorganics) – Reported value is estimated because of interference. See any comments that may be in the laboratory report case narrative. (Organics) – Concentration exceeds the calibration range of the gas chromatograph/mass spectrometer (GC/MS).
N	(All except GC/MS-based analysis) – The spike sample recovery is outside control limits. The data should be considered usable for decision-making purposes.
J	(Organics) – Indicates the constituent was analyzed for and detected. The associated value is estimated because of a quality control deficiency identified during laboratory review. The data should be considered usable for decision-making purposes.
o	(ALL) – The laboratory control sample recovery was outside control limits.
U	(All) – The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.
UJ	UJ – The constituent was analyzed for and was not detected. Because of a QC deficiency identified during laboratory review the value reported may not accurately reflect the method detection limit. The data should be considered usable for decision-making purposes.
X	(All) – The result-specific translation of this qualifier code is provided in the data report and/or case narrative.
Third-Party Validation-Applied Flags	
U	The constituent was analyzed for, but was not detected. The data should be considered usable for decision-making purposes.
UJ	The constituent was analyzed for and was not detected. Because of a quality control deficiency identified during data validation, the value reported may not accurately reflect the reporting limit. The data should be considered usable for decision-making purposes.

Table 5. Qualification Flags

Flag	Definition
J	Indicates the constituent was analyzed for and detected. The associated value is estimated because of a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.
J+	Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected positive bias because of a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.
J-	Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias because of a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes
UR	Indicates the constituent was analyzed for and not detected; however, because of an identified quality control deficiency the data should be considered unusable for decision-making purposes.
R	Indicates the constituent was analyzed for and detected; however, because of an identified quality control deficiency the data should be considered unusable for decision-making purposes.
Data User-Applied Flags	
A	Indicates an issue with the chain-of-custody that could affect data usability.
G	Result has been reviewed and determined to be correct, or the result has been corrected with laboratory confirmation or other supporting information.
H	Laboratory holding time was exceeded before the sample was analyzed.
P	Potential problem. Collection/analysis circumstances make the result questionable.
Q	Associated quality control sample is out of limits.
R	Do not use. Further review indicates the result is not valid. (This review qualifier is used only when there is documented evidence that the result is not valid. Generally, results that are “R” qualified will be excluded from statistical evaluations, maps, and other interpretations.)
Y	Result is suspect. Review had insufficient evidence to show result valid or invalid.
Z	Miscellaneous circumstance exists. Additional information may be found in the Result Comment field (in the HEIS Result table) for this record and/or in the Sample Comment field in the HEIS Sample table.

Table 6. Laboratory- and User-Applied Qualification Flags for the 207-A South Retention Basin Closure Plan Data

Analyte	Number of Results "U" Flagged	Number of Results "J" Flagged	Number of Results "A" Flagged	Number of Results "R" Flagged	Number of Results "Y" Flagged
Acetone	38	0	0	0	0
Methylene chloride	36	2	0	0	0
m+p-cresol (3+4 Methylphenol)*	37	0	3	0	0
o-cresol (2-Methylphenol)	37	0	3	0	0

* m-cresol and p-cresol are listed separately in the *207-A South Retention Basins (S-2-7) Closure Plan*; however, the two cannot be separated and are analyzed together.

7 Results

This chapter includes an overall evaluation of the data against the validation results for a representative number of SDGs.

7.1 Nondetect and Estimated Data Exceeding Practical Quantitation Limits

The PQLs defined in Table 5 of the *207-A South Retention Basins (S-2-7) Closure Plan* were not met for methylene chloride, o-cresol, and m+p-cresol for some reported results. The PQL for acetone was met for all results reported.

For methylene chloride sample data, the laboratories were not able to meet the PQL listed in the closure plan for 30 (2 estimated results and 28 nondetects above PQL) of the 38 samples reported.

For o-cresol and m+p-cresol sample data, the laboratories were not able to meet the PQL listed in the closure plan for all 37 reported samples (all sample results are nondetects above PQL).

In all cases listed above, however, the PQLs (and, hence, the nondetects) were below the closure performance standards for the analytes as listed in Table 5 of the *207-A South Retention Basins (S-2-7) Closure Plan*. Table 7 shows the laboratory PQLs achieved relative to those required in the closure plan.

Table 7. 207-A South Retention Basin Closure Plan PQLs and Laboratory-Achieved PQLs

Analyte	Closure Plan PQL (mg/kg)	Achieved PQL Range (mg/kg)	Achieved Mean PQL (mg/kg)
Acetone	0.02	0.0084 – 0.0170	0.0108
Methylene chloride	0.005	0.0042 – 0.0069	0.0053
m-cresol (3- Methylphenol)	0.33*	0.333 – 0.680	0.364
o-cresol (2-Methylphenol)	0.33	0.333 – 0.382	0.355
p-cresol (4-Methylphenol)	0.66	0.333 – 0.680	0.364

Source: *207-A South Retention Basins (S-2-7) Closure Plan*.

* The PQL identified in the closure plan may have intended to reflect the combined values of m+p cresol since they cannot be separated and are analyzed together.

7.2 Data Validation

Data validation was performed by Analytical Quality Associates, Inc. (AQA) of Albuquerque, New Mexico, as documented in AQA, 2016, *Data Validation Report for CH2M HILL Plateau Remediation Company VSR16-002 Project Waste & Fuels Chemical Validation – Level C*.

All data flags assigned resulting from data validation were entered into the HEIS database.

7.2.1 Validation Summary

The *207-A South Retention Basins (S-2-7) Closure Plan* specifies that at least 5 percent (by matrix and analyte group) of all volatile and semivolatile organic data must undergo Level C data validation. Validation of selected laboratory data was performed by AQA. Table 8 summarizes the samples and laboratory methods that were independently validated for the closure plan. As shown in the Table 8, the 5 percent closure plan requirement was satisfied for all matrices and analyte groups with 100 percent of the data being validated.

Table 8. 207-A South Retention Basin Closure Plan Validated Samples

Analyte Category	Total Number of Samples Validated	Total Number of Samples Analyzed	Percent Validated
Soil Samples			
Acetone	38	38	100
Methylene chloride	38	38	100
m+p-cresol (3+4 Methylphenol)*	37	37	100
o-cresol (2-Methylphenol)	37	37	100

* m-cresol and p-cresol are listed separately in the *207-A South Retention Basins (S-2-7) Closure Plan*; however, the two cannot be separated and are analyzed together.

7.2.1.1 Major Deficiencies

No major deficiencies were found for volatile and semivolatile organics analyses.

7.2.1.2 Minor Deficiencies

A minor deficiency results in qualification of sample data as nondetect or an estimate; however, the data are considered usable for decision-making purposes.

For volatile organic analysis, two minor deficiencies were identified for methylene chloride. These deficiencies led to results being qualified as estimates or as nondetects as summarized in Table 9. In total, 151 analytical data points were subject to third-party validation, resulting in the application of 2 validation flags, which comprises 100 percent of the data set reviewed.

7.2.2 Qualification Flags Applied to the Data Set

Table 9 lists the qualification flags applied to the data set as a result of the data validation process.

Table 9. Summary of Data Validation Qualification Flags for 207-A South Retention Basin Closure Plan Samples

Analyte	Qualifier*	Affected Samples	Reason
Organics (SW-846 Method 8260 – Volatile Organic Compounds)			
Methylene chloride	6.73U	B32HW2	Full trip blank contamination
Methylene chloride	J	B32HV6	Surrogate recovery above acceptance limit
Acetone	None	None	Not applicable
Organics (SW-846 Method 8270 – Semivolatile Organic Compounds)			
m+p-cresol (3+4 Methylphenol)	None	None	Not applicable
o-cresol (2-Methylphenol)	None	None	Not applicable

References: *207-A South Retention Basins (S-2-7) Closure Plan.*

SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update V.*

* Qualifiers are defined in Section 6.3.

7.2.3 Holding Times and Preservation

Holding times are defined as the period of time from sample collection to sample analysis or extraction, and the period of time from sample extraction to sample analysis. Holding times are calculated from the date of sample collection as recorded on the chain-of-custody form to determine the validity of the results.

The holding time requirements for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) are as follows:

- The holding time requirements for gas chromatography/mass spectrometry of VOCs and SVOCs are analysis within 14 days of sample collection for soil.
- Sample preservation requires freezing to <-7°C and >-20°C for VOCs and cooling to <6°C for SVOCs.

All samples were properly preserved and analyzed within the prescribed holding times.

8 Field Quality Control

Field QC sampling requirements and results are discussed in this chapter.

8.1 Field Quality Control Sampling Requirements

The *207-A South Retention Basins (S-2-7) Closure Plan* required collection of FTB samples, FXR samples, field duplicate samples, and split samples. Table 10 summarizes the required frequency for each field QC sample type.

Table 10. Project Quality Control Checks

QC Sample Type	Purpose	Frequency
Field Quality Control		
Full trip blank	Assess contamination from containers or transportation	1 per 20 samples, *per media sampled*.
Field transfer blank	Assess contamination from sampling site	Frequency not specified. Typical is a minimum of one field transfer blank will be collected at each site *per media sampled* where the sample will undergo volatile organic analysis.
Field duplicate	Estimate precision, including sampling and analytical variability	1 per batch[b], 20 samples maximum, for each media sampled[c].
Field split sample	Estimate precision, including sampling, analytical, and interlaboratory variability	As needed. When needed, the minimum is one per analytical method, per media sampled, for analyses performed where detection limit and precision and accuracy criteria have been defined in the Performance Requirements tables.

a. Whenever a new type of nondedicated equipment is used, an equipment rinsate blank will be collected every time sampling occurs until it can be shown that less frequent collection of equipment rinsate blanks is adequate to monitor the decontamination procedure for the nondedicated equipment.

b. Batching across projects is allowed for similar matrices (e.g., Hanford Site groundwater).

c. Soil grab samples are exempted from duplicate sampling.

8.2 Field Quality Control Results

FTB samples are analyzed to determine if positive results may be attributed to contaminants introduced as a result of the transfer of samples from the field to the laboratory. Any analyte measured above the laboratory detection limits is evaluated for potential impacts to associated sample results.

A total of two FTB samples were taken in association with the soil sampling. Of the eight analytical results associated with the FTB samples, one of them was reported as estimated and flagged with a “J” laboratory qualifier for methlylene chloride. The remaining seven analytical results were flagged with a “U” laboratory qualifier as nondetected.

One FXR sample was taken in association with the samples. The VOCs reported from the FXR were reported as not detected and flagged with a “U” laboratory qualifier.

No equipment rinsate blank samples were collected with the sampling activities described in this report.

Two field duplicate samples were analyzed on sample points 207-A-6 and 207-A-15. The VOC and SVOC results reported from the field duplicates were reported as not detected and flagged with a “U” laboratory qualifier.

One field split sample was analyzed on sample point 207-A-10. The VOC and SVOC results reported from the field splits were reported as not detected and flagged with a “U” laboratory qualifier.

9 Laboratory Quality Control

In addition to the evaluation performed on field QC data (as described in Chapter 8), a broad review of the laboratory QC results was also conducted. Laboratory QC results were stored electronically in HEIS and were evaluated against the acceptance criteria. Table 11 provides a summary of the laboratory QC acceptance criteria used.

Table 11. Laboratory QC Acceptance Criteria

QC Element	Acceptance Criteria
Laboratory blank samples	Laboratory blank limit is 2 times the MDL. However, for common laboratory contaminants acetone, methylene chloride, 2-butanone, toluene, and phthalate esters, the QC limit is 5 times the MDL.
Laboratory control samples	LCS percent recovery acceptance criteria (accuracy) are listed in Table 4.
Matrix spikes/matrix spike duplicates (where applicable)	Laboratory spikes are evaluated by comparing the percent recovery with the upper and lower control limits provided by the laboratory. MS percent recovery acceptance criteria (accuracy) are listed in Table 4.
Laboratory control sample duplicates/matrix spike duplicates (where applicable)	Duplicate pair acceptance criteria (precision) have an RPD less than or equal to 30% for soil matrices as listed in Table 4.
Surrogates (where applicable)	Surrogate percent recovery within laboratory established statistical control limits.

Source: *207-A South Retention Basin (S-2-7) Closure Plan*.

MDL = method detection limit

9.1 Laboratory Contamination

Hanford Site laboratory contracts require that laboratory method blanks be analyzed with each batch of up to 20 samples. A total of 12 laboratory blank results were reported. All results reported not detected and flagged with a “U” laboratory qualifier. Therefore, all of the laboratory blank results satisfied evaluation criteria.

9.2 Laboratory Precision

Laboratory precision is determined by the difference between duplicate sample pair results or between MS/MSD sample results.

A total of nine LCS/laboratory control sample duplicate (LCSD) and/or MS/MSD pairs were evaluated. There were three LCS/LCSD pairs, one run with each volatile organic analysis batch. MS/MSD pairs were run on each of the three VOA batches and each of the three semivolatile organic analysis batches. All sample pairs met the RPD limits, the mean RPD value is 4.5. As a result, all results satisfied evaluation criteria.

9.3 Accuracy

Three types of QC are used to assess accuracy. The LCS is used to assess the performance of the laboratory with respect to the accuracy of the laboratory preparation and analysis processes. The MS samples are used to assess the accuracy method on the sample matrix and evaluate matrix effects that may bias the data. Laboratory surrogate recoveries are used to assess overall method performance for organic methods.

9.3.1 Laboratory Control Samples

A total of 12 LCS results were reported. All LCS recoveries satisfied the acceptance criteria.

9.3.2 Matrix Spike Recovery

MS recovery is also used as a measure of analytical accuracy. There were a total of 12 MS sample results reported. All MS recoveries satisfied the acceptance criteria.

9.3.3 Surrogate Recovery

Surrogates were analyzed in relation to Method 8260 volatile organic analysis and Method 8270 semivolatile organic analysis. A total of 445 surrogate results were evaluated; 163 were for VOCs and 282 were for SVOCs. Greater than 99 percent of the results were satisfactory, with four values reported outside the laboratory statistical control limits. Three values exceeded the maximum laboratory control limits, and sample results associated with these surrogate failures have a potential high bias for volatile organic analysis results. Failures were noted on the following samples and surrogates: for samples B32HT2 and B32HV6, the 1,2-dichloroethane-d_4 surrogate recoveries were above the upper acceptance limit. For sample B32J15, the 1,2-dichloroethane-d_4 surrogate recovery was above the upper acceptance limit. All sample results were nondetects and were not qualified. One value exceeded the minimum laboratory control limit for 2,4,6-tribromophenol for the semivolatile organic analysis of the split sample. Failing surrogate 2,4,6-tribromophenol links to internal standard 1,4-dichlorobenzene-d_4 and does not affect the cresol data.

9.4 Review of Laboratory QC Information

Laboratory data package case narratives were reviewed to identify potential QC issues that would affect the usability of these data. Overall, no issues were identified that would have led to the rejection of any reported results. Some minor data quality issues were identified in the case narratives.

10 Data Usability Conclusions

The assessment noted some deficiencies in the data. These deficiencies are summarized in the following subsections.

10.1 Data Verification/Completeness Considerations

Based on the review performed in this DQA, all required samples and field QC samples were collected in accordance with the *207-A South Retention Basin (S-2-7) Closure Plan*. In addition, the analytical data sets are complete, and analyses were performed according to the contractually required analytical methodology.

10.2 Data Validation Considerations

100 percent of the data collected were subjected to a rigorous third-party validation. The few observed QC deficiencies were minor and were not considered by the validators to limit the utility of the data for

decision making. Values for those constituents listed as "J" flagged should be considered estimated but usable. The main validation observations are provided in Table 12.

Table 12. Validation Observations

Deficiency	Qualification	Analyte	Sample(s)
Surrogate (1,2-dichlororethane-d_4) result above upper acceptance limit	Results are nondetect (no qualifier) or estimates (J qualifier)	Methylene chloride	B32HT2 B32HV6 B32J15
FTB above method detection limit	Results are nondetect at PQL	Methylene chloride	B32HW2

10.3 Laboratory Quality Control Considerations

Based on the review performed, required laboratory QC samples were analyzed at the frequency and quantity required. Table 13 shows there were minimal failures associated with the laboratory QC with only three surrogate samples failing to meet acceptance criteria. The three surrogate failures had minimal impact on data with one result being flagged as estimated as an outcome of these failures.

Table 13. Laboratory QC Summary

	Number of LCS Samples Not Meeting Acceptance Criteria	Number of Duplicate Pairs Not Meeting Acceptance Criteria	Number of MS Samples Not Meeting Acceptance Criteria	Number of Surrogate Samples Not Meeting Acceptance Criteria	Number of Method Blank Samples Not Meeting Acceptance Criteria
Acetone	0/3	0/6	0/3	2/163[a]	0/3
Methylene chloride	0/3	0/6	0/3		0/3
m+p-cresol (3+4 Methylphenol)[a]	0/3	0/3	0/3	1/282[b]	0/3
o-cresol (2-Methylphenol)	0/3	0/3	0/3		0/3

a. Failing surrogate was 1,2-dichlororethane-d_4, one of the failing surrogates that causes one methylene chloride result to be 'J' flagged. The second failing surrogate had no impact to data.

b. Failing surrogate was 2,4,6-tribromophenol, which links to internal standard 1,4-dichlorobenzene-d_4 and does not affect the cresol data.

10.4 Conclusions

Based on the results of this DQA, the sample set and analytical set are both complete, and there is a very low overall number of flagged data points indicating data quality problems. Given the high degree of acceptable data, the analytical results (volatile and semivolatile organic) are considered usable for their intended purposes as indicated in the *207-A South Retention Basin (S-2-7) Closure Plan*. Samples were collected and analyzed as specified in the closure plan. Sample results accurately indicate the presence or absence of target analyte contamination at sample locations. Detection limits (PQLs), precision, accuracy,

and data completeness were evaluated to determine whether any analytical data should be rejected as a result of QA/QC deficiencies. There were minimal laboratory QC parameter failures, and no analytical data were rejected. Therefore, laboratory and matrix accuracy and precision are in control overall, no systematic or general discrepancies were displayed, and sample results are believed to be representative of site conditions at the time of collection.

The conclusions of this DQA are that the data that have been collected are of the right type, quality, and quantity for use as discussed in the *207-A South Retention Basins (S-2-7) Closure Plan*.

11 References

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Appendix M

Closure Certification Report for the 207A South Retention Basins

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CLOSURE CERTIFICATION

207-A South Retention Basins

December 27, 2016

Prepared For:

CH2M HILL Plateau Remediation Company

2420 Stevens Center Place

Richland, Washington 99352

Prepared by:

AKANA

320 North 20th Avenue

Pasco, Washington 98301

December 27, 2016

Mr. Brian Dixon
CH2M Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352

Subject: **207-A South Retention Basin**
Hanford Facility
Independent Qualified Registered Professional Engineer
Closure Certification

Reference: **Hanford Dangerous Waste Permit (WA), Part V Closure Unit Group 9**
207-A South Retention Basin (S-2-7) Closure Plan

Dear Mr. Dixon:

Please find enclosed my certification of closure for the completion of the activities associated with the closure of the 207-A South Retention Basin (SRB) in the 200 East Area at the Hanford Site, covered by the Hanford Dangerous Waste Permit (WA7 89000 8967, Part V, Closure Unit 9).

The closure of the 207-A SRB involved demolition and removal of the basin and soil sampling to verify soils clean-closure standards. This certification is based upon my review of the 207-A SRB closure activity and sampling reports and various other associated documents, as described in the enclosed Closure Certification Report. This certification is limited to the proper completion of the closure activities described herein in accordance with the requirements of the Hanford Dangerous Waste Permit, but does not indicate the completion of all requirements for closure as identified in the Hanford Dangerous Waste Permit.

This Closure Certification is understood to be an expression of my professional opinion as an independent qualified registered professional engineer (IQRPE), based upon my best knowledge, information, and observation of the closure activities; and that it constitutes neither a guarantee nor a warranty of the closure activities.

The enclosed report summarizes the activities completed to verify closure in accordance with the Hanford Dangerous Waste Permit. This report meets the requirements of the 40 Code of Federal Regulation 264.115 and WAC 173-303-610(6), which require that the closure activities be certified by

an IQRPE. The enclosed report describes the actions undertaken by the IQRPE during the closure process to verify that activities were performed in accordance with the 207-A SRB Closure Plan.

I hereby certify that the dangerous waste management unit at the facility described in this document has been closed in accordance with the requirements of the approved 207-A SRB Closure Plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons that manage the system, and those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Respectfully,

Timothy J. Oliver, PE
Washington PE 41543

TIMOTHY JAMES OLIVER
STATE OF WASHINGTON
41543
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: 04/11/2018

27DEC16

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A 207-A SOUTH RETENTION BASIN CLOSURE FIELD DOCUMENTS

EXECUTIVE SUMMARY

This report provides a description of the activities associated with the closure of the 207-A South Retention Basin (SRB) treatment, storage, and/or disposal (TSD) unit. The report includes a summary of the completed activities, documentation reviews, physical field inspection results, and supporting documentation used by the Independent Qualified Registered Professional Engineer (IQRPE) to provide certification of closure as required by Washington Administrative Code (WAC) 173-303-610(6) and Section 4.9, Certification of Closure, of the 207-A SRB Closure Plan. The standards for closure of this TSD unit are in accordance with the requirements of the Tri-Party Agreement (TPA) Action Plan, directing that Hanford Site interim status TSD unit closures meet cleanup requirements established in accordance with WAC 173-303-610. As required by the TPA Action Plan, clean closure must demonstrate that TSD unit operations did not adversely affect soil.

Closure activities were completed in accordance with the 207-A SRB Closure Plan. The Closure Plan complies with WAC 173-303-610(2) through WAC 173-303-610(6), "Dangerous Waste Regulations," "Closure and Post-Closure," and represents the baseline for closure and the enforceable compliance requirements for conducting closure. The completion of these closure activities is subject to WAC certification requirements.

The 207-A SRB Closure Plan requires that the IQRPE observe field activities and review documents including at least the following: (1) review of the 207-A SRB storage cells visual inspection; (2) review of sampling procedures and results; (3) observation and/or review of sampling activities; (4) observation and/or review contaminated environmental debris removal; and (5) verification that locations of samples are as specified in the Sampling and Analysis Plan (SAP). Those observations and reviews are included in this report which will be placed in the Administrative Record and provided to Ecology by the permittees along with the other documentation supporting closure certification.

The IQRPE reviewed the following documentation to support closure certification:

1. CHPRC field notes and photographs related to closure activities
2. GPS survey of 207-A SRB
3. Log of waste shipments to ERDF
4. Sampling log book and data forms
5. Sample results summary
6. Analytical results for all sampling performed
7. VSP Data Summary Report

8. Third Party Data Validation Report

9. Data Quality Assessment

The 207-A SRB was located directly to the east of the 242-A Evaporator in the 200E area. The basin consisted of three separate open liquid effluent storage cells constructed of concrete, which operated as a surface impoundment. The bottom of each basin cell sloped toward a drain located at the north end of the cell. During construction of the basin, a liner was installed first, then the basin itself.

The 207-A SRB began operations in March 1977. In 1982, all three concrete cells were coated with an elastomeric coating to prevent waste contaminants from penetrating the concrete. In 1989, the basin was physically isolated from receipt of 242-A Evaporator process condensate effluent during a halt in operations at the 242-A Evaporator to begin facility upgrades to transfer waste to the Liquid Effluent Retention Facility. The 207-A SRB concrete structures have remained intact since operations ceased in 1989; no leaks have been reported from the basin.

The 207-A SRB Closure included the following activities:

- The 207-A SRB TSD unit, as well as other waste sites and TSD units, were included as part of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* remedial investigation for 200-PW-2/4 Operable Unit. Characterization activities consisting of borehole drilling, geophysical logging, field screening, and sampling and analysis of concrete cores and borehole soils were performed in 2003 and 2004. In total, 29 soil samples and 9 concrete samples were collected for analysis from the 3 concrete basin storage cells.

- Work plan sampling and analysis requirements for TSD unit characterization were determined through a data quality objectives process documented in CP-14176, *Remedial Investigation Data Quality Objectives Summary Report for the 200-PW-4 Operable Unit*. A data review supported the decision to clean close the TSD unit by removal of the basin storage cells.

- The 207-A SRB was clean closed by removal of the basin storage cells and up to 1 meter (3 feet) of soil under the concrete cells. Demolition was considered complete after all debris and soil was removed, piping in the excavation footprint was removed, and all waste generated during demolition was dispositioned to Hanford Environmental Restoration Disposal Facility (ERDF).

- Following demolition, sample collection and analysis was performed to verify clean closure for the soils remaining in place. In accordance with the Closure Plan, both random and focused sampling strategies were used. Focused sampling included choosing sampling locations where piping was located beneath each cell, where concrete joints in the cells were located, and where cracks in the coating were documented.

- When the sample results verified that the soil met the cleanup criteria, the basin was backfilled.

The 207-A SRB Closure activities were reviewed by the IQRPE Certifying Engineer. This included oversight of the demolition, sampling, and backfill activities and a thorough review of the sample analytical data and other documentation associated with the implementation of 207-A SRB Closure. The Certifying Engineer has not noted any discrepancies or minor deviations during the completion of the closure activities.

1.0 PURPOSE

This report provides a description of the activities associated with the closure of the 207-A South Retention Basin (SRB). The report includes a summary of the completed activities, documentation reviews, physical field inspection results, and supporting documentation used by the Independent Qualified Registered Professional Engineer (IQRPE) to prepare and complete this certification. The standards for closure of this TSD unit are in accordance with the requirements of the Tri-Party Agreement (TPA) Action Plan (Ecology et al 1989), Section 5.3, directing that Hanford Site interim status treatment, storage, and disposal (TSD) unit closures meet cleanup requirements established in accordance with Washington Administrative Code (WAC) 173-303-610. As required by the TPA Action Plan, Section 6.3.1, clean closure must demonstrate that TSD unit operations did not adversely affect soil.

Closure of the 207-A SRB was completed in accordance with the requirements of the 207-A SRB Closure Plan (Ecology 2016). This report provides a description of the closure activities.

This report and the accompanying clean-closure certification are provided in accordance with WAC 173-303-610(6), which requires that, within 60 days of completion of closure of 207-A SRB, a certification that the TSD unit has been closed in accordance with the specifications in the Closure Plan be submitted to Ecology by registered mail. The following documentation was used to support the closure certification:

- All CHPRC field notes and photographs related to closure activities
- A GPS survey of 207-A SRB
- A description of any minor deviations from the approved Closure Plan and justification for these deviations
- A log of waste shipments to the Hanford Environmental Restoration Disposal Facility (ERDF) documenting the removal and final disposition of the basins and underlying soil
- Sampling logbook and data forms, including sampling procedures, sampling locations, quality assurance/quality control (QA/QC) samples, and chain-of-custody documentation for all samples and measurements
- Sample results summary and analytical results for all sampling performed
- VSP Data Summary Report
- Third Party Data Validation Report
- Data Quality Assessment
- A description of the TSD unit area appearance at completion of closure

This report includes a summary of the completed activities, documentation reviews, physical field inspection results, and supporting documentation used by the IQRPE to prepare this certification. IQRPE activities were completed by Akana under contract to CH2M Plateau Remediation Company (CHPRC). CHPRC is the operator of the 207-A SRB, under contract to the DOE.

2.0 DANGEROUS WASTE MANAGEMENT UNIT DESCRIPTION

This TSD is located to the east of the 242-A Evaporator and north of the 241AP Tank Farm. The 207-A SRB, also known as Process Condensate Basins 1, 2, and 3 (that is, PC-1, PC-2, and PC-3), began operations in March 1977. The 207-A SRB consisted of three separate open liquid effluent storage cells constructed of concrete, which operated as a surface impoundment. Each of the three cells had a 264,979-liter (70,000-gallon) design capacity, for a total capacity of 794,937 liters (210,000 gallons). Each cell was 16.8 meters (55 feet) long, 3.0 meters (10 feet) wide at the bottom, and 2.1 meters (7 feet) deep. The bottom of each basin cell sloped toward a drain located at the north end of the cell. The drain lines from the storage cells went to a pump pit (valve box) located to the north of the 207-A SRB.

Initially, a Hypalon® liner provided liquid retention in the storage cells. In 1982, concrete walls were installed over the liner. The concrete was coated with an elastomeric coating to prevent waste contaminants from penetrating the concrete. Construction was sequenced as follows:

- The site was excavated to the appropriate grade, and a Hypalon® liner was installed. A berm was created around the outer edge of the basins. Backfill was placed as required where excavations were done for piping associated with the basins. Where piping entered or exited the basins, the liner was cut to allow the piping to pass through, but was repaired to create a seal around the penetration.
- Concrete was poured to create the sides and bottoms of the basins. The joints between the concrete were filled with a self-expanding cork meeting.
- Waterstops consisting of 6-inch dumbbells of styrene butadiene rubber were placed in joints in the concrete to prevent the passage of water.
- The surface of the concrete was cleaned and sandblasted when the concrete had cured. A two-part elastomeric coating was placed on the sides and bottoms of the basins.

This method of construction provided integration of the liner, concrete, and elastomeric membrane to create a structure that was designed to avoid preferential pathways to the soil column.

The 207-A SRB operated from 1977 to 1989. The total quantity of process condensate waste on site at any one time was limited to the combined design capacity of the storage cells, approximately 794,937 liters (210,000 gallons). The total volume of evaporator condensate that the TSD unit received for intermediate storage was 377,000,000 liters (99,590,000 gallons). The process condensate

was an aqueous, mixed-waste solution containing dissolved cations and anions, such as sodium, potassium, aluminum, hydroxides, nitrates, and nitrites.

The 242-A Evaporator process condensate was designated as mixed waste because the waste was derived from a waste containing radionuclides and spent halogenated and nonhalogenated solvents (dangerous waste codes F001, F002, F003, F004, and F005) and because of the toxicity of ammonia (WT02, state-only, toxic, dangerous waste). The TSD unit's constituents associated with these dangerous waste codes included ammonia, acetone, *m*-cresol, *o*-cresol, *p*-cresol, and methylene chloride.

In 1989, the basin was physically isolated from receipt of 242-A Evaporator process condensate effluent during a halt in operations at the 242-A Evaporator to begin facility upgrades to transfer waste to the Liquid Effluent Retention Facility. The 207-A SRB concrete structures have remained intact since operations ceased in 1989; no leaks have been reported from the basin. The TSD unit boundary was established as the exterior wall of the concrete basin structure.

3.0 IQRPE ACTIVITIES

The IQRPE was retained to provide certification of the closure, as required by WAC 173-303-610(6), and was responsible for observing field activities and reviewing documents associated with closure of 207-A SRB. The IQRPE completed the following field activities:

- Observed pre-demolition activities involving identification of potential focused sampling locations and surveying and photo-documentation of pre-demolition conditions
- Observed demolition and debris and soil removal activities, including excavation of concrete basins, liner, piping, and underlying soils
- Observed debris and soil disposal activities involving placement of materials into ERDF cans and processing for transportation to ERDF
- Observed post-demolition excavation surveying activities
- Observed post-demolition sample location surveying
- Observed post-demolition sampling activities
- Reviewed sampling results and supporting analytical data

These closure activities are summarized in the 207-A SRB Closure Report (CHPRC 2016b). All IQRPE demolition site observations and notes describing the condition of the basin liner during the demolition process are included in Attachment A.

All IQRPE services for monitoring and certifying the completion of the 207-A SRB closure activities were performed under the direction of a professional engineer registered in the State of Washington. In order to complete the closure certification, the IQRPE conducted oversight of the

closure verification sampling and reviewed the analytical results. The oversight activities included a visual inspection of 207-A SRB on several occasions. No minor deviations from the Closure Plan requirements were identified for this closure.

4.0 LIMITATIONS AND EXCLUSIONS

This certification for the 207-A SRB closure is limited to an evaluation of the demolition and sampling activities conducted in accordance with the 207-A SRB Closure Plan.

5.0 CLOSURE PERFORMANCE STANDARDS

Closure performance standards for 207-A SRB are based on WAC 173-303-610(2), which requires closure of the facility in a manner that accomplishes the following objectives:

- Minimizes the need for further maintenance
- Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere
- Returns the land to the appearance and use of surrounding land areas, to the degree possible, given the nature of the previous dangerous waste activity

As a surface impoundment, the clean-closure determination for 207-A SRB is based on review of the operational history, operating records, and waste management records, and a visual inspection of the area to verify that the unit did not adversely impact soil. Sampling and analysis activities were developed utilizing the results of the records review and visual inspection and were conducted in accordance with the sampling and analysis plan (Section 4.6 of the 207-A SRB Closure Plan). The objective of the sampling was to determine if the Model Toxics Control Act (MTCA, WAC 173-340) Method B closure performance standards for soil were met, demonstrating clean closure of 207-A SRB.

6.0 CLOSURE SCHEDULE AND TIME FRAME

Demolition and confirmation sampling and analysis activities were completed within 180 days of approval of the permit modification incorporating the Closure Plan. No extension to the 180-day closure activity expiration date was necessary. Closure certification will be transmitted to Ecology within 60 days of completion of closure activities at 207-A as outlined in the Closure Plan.

7.0 CLOSURE VERIFICATION SAMPLING

Sampling and analysis of the soil was conducted to confirm that clean-closure levels in the soil have been achieved. The 207-A SRB Closure Plan included a SAP summarizing the sampling design used

and associated assumptions based on the knowledge of the 207-A SRB. The sampling design included input parameters used to determine the number and location of samples.

All sampling and analysis was performed in accordance with the sampling and quality standards established in the SAP. The SAP detailed sampling and analysis procedures in accordance with (1) SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update IV-B; (2) the American Society for Testing and Materials (ASTM) Annual Book of ASTM Standards; and (3) applicable EPA guidance. Sampling and analysis activities met applicable requirements of SW-846, ASTM standards, EPA-approved methods, and DOE/RL-96-68, Hanford Analytical Services Quality Assurance Requirements Document (HASQARD). The SAP was developed using Ecology Publication 94-111, Section 7.0, "Sampling and Analysis for Clean Closure," and EPA/240/R-02/005 (EPA QA/G-5S).

The Part A and effluent records for discharges to the 207-A SRB storage cells were reviewed as part of the development of the Closure Plan. This information was used to identify the federal and state waste codes of the liquid effluent discharged to the storage cells.

The process condensate was an aqueous, mixed-waste solution containing radionuclides with trace amounts of dissolved cations and anions, such as sodium, potassium, aluminum, hydroxides, nitrates, and nitrites. The 242-A Evaporator process condensate is regulated as mixed waste (WAC 173-303-040, "Definitions") because it is derived from a waste containing radionuclides and spent halogenated and nonhalogenated solvents (WAC 173-303, dangerous waste codes F001, F002, F003, F004, and F005), and ammonia (WT02, state-only toxic dangerous waste). The 207-A SRB constituents associated with these dangerous waste codes include ammonia, acetone, *m*-cresol, *o*-cresol, *p*-cresol, and methylene chloride.

Sampling for carbon tetrachloride and chloroform was required if the Hypalon® liner was observed to be degraded at the time of removal. These analyses are not required in soil if the Hypalon® liner is observed to be in good condition at the time of removal. The Hypalon® liner was observed to be in good condition during demolition, and therefore these analyses were not completed.

7.1 SAMPLING DESIGN (CLOSURE PLAN SECTION 4.6.2)

The objective of sampling the soil underneath the 207-A SRB storage cells was to obtain analytical data to confirm that the soil did not have contaminants that exceeded the MTCA Method B clean-closure performance standards.

The SAP used Ecology Publication 94-111, Section 7.0, "Sampling and Analysis for Clean Closure," to determine the type of sampling design that was used to demonstrate clean closure. When designing the sampling plan, both focused and area-wide (grid) sampling methods were considered. Ecology Publication 94-111, Section 7.2.1, identifies area-wide sampling as appropriate when the spatial distribution of contamination at or from the closure unit is uncertain. Ecology Publication 94-111, Section 7.3, "Sampling to Determine or Confirm Clean Closure," identifies the

area-wide sampling approach as generally appropriate for sampling to determine or confirm that clean-closure levels are achieved. Focused sampling, as identified in Section 7.2.2 of Ecology Publication 94-111, is selective sampling of areas where contamination is expected or releases have been documented. Based on the records review and visual inspection performed for the storage cells, both the area-wide sampling approach and focused sampling of concrete seams at the wall and floor joints were determined appropriate for verification of clean closure.

7.1.1 Area-Wide (Grid) Sampling

In grid sampling, samples are collected at regularly spaced intervals over space or time. An initial location or time is chosen at random, and the remaining sampling locations are defined so that locations are at regular intervals over an area (grid). Grid sampling is used to search for hot spots and to infer means, percentiles, or other parameters. It is useful for estimating spatial patterns or trends over time. This design provides a practical method for designating sample locations and ensures uniform coverage of a site, unit, or process.

The quantity and location of the area-wide samples was determined using the Visual Sample Plan (VSP) software (PNNL, 2001). VSP, a tool used throughout Washington State and nationally, statistically determines the quantity of samples required to accept or reject the null hypothesis based on input parameters specific to the unit.

Both parametric and nonparametric equations rely on assumptions about the data population. However, nonparametric equations typically require fewer assumptions and allow for more uncertainty about the distribution of data. Alternatively, if the parametric assumptions are valid, the required number of samples is usually fewer than if a nonparametric equation were used. For soils underneath the 207-A SRB storage cells, nonparametric equations were used, largely based on data assumptions from information obtained from a grouping of similar waste sites with the same type of constituents. To determine the parameters for the Closure Plan, the parameters from the 200-MG-1 waste sites in the SAP document DOE/RL-2009-60, Sampling and Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites, were evaluated, deemed appropriate, and used for the input parameters for soil in this Closure Plan. The VSP parameter inputs and the basis for those inputs are detailed in Table 3. 5 of the 207-A SRB Closure Plan.

The decision rule for demonstrating compliance with the MTCA Method B clean-closure level has three parts (referred to as the 3-part test per WAC 173-340-740[7][e]):

- The upper one-sided ninety-five percent confidence limit on the true mean soil concentration shall be less than the MTCA Method B soil cleanup level.
- No sample concentration can be more than twice the cleanup level.
- Less than 10 percent of the samples can exceed the cleanup level.

Using a nonparametric test and the input parameters identified in Table 3 of the 207-A SRB Closure Plan, VSP calculated a minimum of 20 samples were required to reject the null hypotheses with 95 percent confidence and ensure that soil would not be mistakenly determined as clean per the clean-closure standards. For using the VSP software, the null hypothesis compares a site mean to a fixed threshold. Data were evaluated to ensure that less than 10 percent of the individual values did not exceed the MTCA Method B clean-closure performance standards and that no values were more than twice the cleanup level.

Sample locations were determined using the area-wide grid with a random-start sampling method run in the VSP software. Statistical analyses of systematically collected data are considered valid if a random start to the grid is used. The anticipated sampling area dimensions for 207-A SRB were entered into VSP to determine the locations of samples. The triangular grid sampling layout was determined to have an even distribution over the entire soil sampling area, providing the most representative data set. The choice of a triangular grid sampling layout required one additional sample location in order to complete the grid over the sample area, resulting in 20 samples. The 20 samples were to be taken from the node locations indicated by the VSP results and were assigned sample location identifications and sample numbers using the Hanford Environmental Information System (HEIS). The southeast corner of the 207-A SRB excavation was considered the (0,0) point of the sampling. The first node location was chosen at random by the VSP software, and the subsequent 19 sample locations were assigned by the VSP software, using a triangular grid sampling layout.

Post-analysis sample results were reentered into VSP to verify the original assumptions. The analysis concluded that the assumptions were valid and that the results were below the required levels.

7.1.2 Focused Sampling

Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage way, boundary, or other linear dimension.

For focused sampling at the concrete expansion joints in the 207-A SRB storage cell floors, professional judgment was used to determine the number of sample locations. Three sample locations for each 207-A SRB storage cell floor were determined to be sufficient to support the overall sampling approach. VSP did not include the focused sampling locations because they are biased and would skew the randomness of the VSP locations.

Prior to demolition, the 207-A SRB basins were inspected and the locations of cracks, concrete expansion joints, and other potential leak sites were identified and photographed. GPS coordinates for each of these locations were recorded. Once the storage cells were removed, these locations

were evaluated and the three most likely sites for each basin were sampled in conjunction with the VSP result sample locations. Three additional focused samples were collected in debris and soil staging areas used during the demolition activities to assess the potential that contamination migrated beyond the basins during demolition activities. A total of 12 focused samples were collected.

Evaluation of the results of focused sampling was performed by direct comparison to the closure standard, without applying any statistical tests. Additional cleanup (for example, removal of soil) for focused sample locations that exceeded the cleanup standard was not necessary.

7.2 SAMPLING METHODS AND HANDLING (Closure Plan Section 4.6.2.1)

Soil surface was defined as the exposed layer once the 207-A SRB storage cells were removed. The sample matrix consisted of engineered fill collected in precleaned sample containers taken at a depth of 0 to 15.24 centimeters (0 to 6 inches) below ground surface. Grab samples were collected in the soil remaining after removal of the 207-A SRB. Subsurface sampling was deemed unnecessary beyond the planned sampling of the exposed surface layer after removal of the storage cells and up to 1 meter (3 feet) of soil beneath and adjacent to the cells.

Once the soil was sampled, the sampled medium was screened to remove material larger than approximately 2 millimeters (0.08 inch) in diameter. Removal of material larger than approximately 2 millimeters in diameter allowed for a larger surface-area-to-volume ratio and was more likely to identify any potential contamination in the sample. Grab samples were collected into containers at the chosen node sample locations. To ensure sample and data usability, sampling was performed in accordance with established sampling practices, procedures, and requirements pertaining to sample collection, collection equipment, and sample handling.

Sample container, preservation, and holding time requirements were specified in the Closure Plan. Level I EPA precleaned sample containers were used for samples collected for chemical analysis. The sample location, depth, and corresponding HEIS numbers were documented in the sampler's field logbook. A custody seal was affixed to each sample container and sample collection package in such a way as to indicate potential tampering.

Each sample container was labeled with the following information on firmly affixed, water-resistant labels:

- SAF and form number
- HEIS number
- Sample collection date and time
- Sampler identification
- Analysis required

- Preservation method (if applicable)

Sample records included the following information:

- Analysis required
- Sample location
- Matrix (that is, soil or water)

Sample custody was maintained in accordance with existing Hanford Site protocols to ensure maintenance of sample integrity throughout the analytical process. Chain-of-custody protocols were followed throughout sample collection, transfer, analysis, and disposal to ensure that sample integrity was maintained.

All waste (including unexpected waste) generated by sampling activities was managed in accordance with WAC 173-303 and applicable or relevant and appropriate requirements incorporated via the action memorandum, DOE/RL-2015-51.

7.3 ANALYTICAL METHODS (CLOSURE PLAN SECTION 4.6.2.2)

All analyses and testing were performed consistent with the Closure Plan, laboratory analytical procedures, and HASQARD (DOE/RL-96-68). Analytical methods and performance requirements associated with the target analytes were as outlined in the 207-A SRB Closure Plan Table 5. Analyses were conducted by General Engineering Laboratories (GEL) and Test America (GEL 2016a and 2016b and Test America 2015).

7.4 QUALITY CONTROL (CLOSURE PLAN SECTION 4.6.2.3)

QC procedures were followed in the field and laboratory to ensure that reliable data were obtained. Field QC samples were collected to evaluate the potential for cross-contamination and provide information pertinent to field sampling variability. Field QC included collection of the following samples:

- Full trip blank
- Field transfer blank
- Equipment rinsate blank
- Field duplicate
- Field split samples

Laboratory QC samples estimate the precision and bias of the analytical data. Field and laboratory QC samples were collected in accordance with the summary in Table 6 of the 207-A SRB Closure Plan.

A data quality assessment (DQA) was performed, utilizing the guidance in EPA/240/B-06/084, Data Quality Assessment: A Reviewer's Guide implementing the specific requirements of the Closure Plan with respect to data verification, data validation, and data quality assessment (CHPRC 2016b).

The DQA found that the PQLs defined in the 207-A SRB Closure Plan Table 5 were not met for methylene chloride, *o*-cresol, and *m*+*p*-cresol for some reported results. For methylene chloride sample data, the laboratories were not able to meet the PQL listed in the Closure Plan for 30 of the 38 samples reported (2 estimated results and 28 nondetects above PQL). For *o*-cresol and *m*+*p*-cresol sample data, the laboratories were not able to meet the PQL listed in the Closure Plan for all 37 reported samples (all sample results are nondetects above PQL). However, in all cases, the PQLs (and, hence, the nondetects) were below the closure performance standards for the analytes.

7.4.1 Data Verification (Closure Plan Section 4.6.2.4)

Analytical results were received from the laboratory, loaded into a database (HEIS), and verified. Verification activities included verification of the following:

- Amount of data requested matches the amount of data received (number of samples for requested methods of analytes)
- Correct procedures/methods are used
- Documentation/deliverables are complete
- Hard copy and electronic versions of the data are identical
- Data seem reasonable based on analytical methodologies

7.4.2 Data Validation (Closure Plan Section 4.6.2.5)

Data validation was performed by Analytical Quality Associates, Inc. (AQA 2016). The laboratory supplied contract laboratory program equivalent analytical data packages intended to support data validation. The laboratory submitted data packages that were supported by QC test results and raw data. Controls were in place to preserve the data sent to the validators and allow only additions to be made, not changes to the raw data.

The format and requirements for data validation activities were based upon the most recent version of USEPA-540-R-08-01, National Functional Guidelines for Superfund Organic Methods Data Review (OSWER 9240.1-48), and USEPA-540-R-10-011, National Functional Guidelines for Inorganic Superfund Data Review (OSWER 9240.1-51). As defined by the validation guidelines, at least 5 percent of the results were required to be subject to Level C validation.

Data validation was completed for 100 percent of the analytical data. The data validation process found only minor deficiencies related to high surrogate recovery and blank contamination.

7.4.3 Verification of VSP Input Parameters (Closure Plan Section 4.6.2.6)

Analytical data were entered back into the VSP software (CHPRC 2016b). If all analytical data for a particular analyte were nondetect, verification of VSP input parameters was not required for that analyte. The VSP software used the analytical data to determine if the user-input parameters were estimated appropriately. Once analytical data were entered into the VSP software, VSP calculated the true standard deviation and determined if the null hypothesis could be rejected. If the calculated standard deviation was smaller than the estimated user-input standard deviation, no additional sampling was required. If the calculated standard deviation was larger than the estimated standard deviation, additional sampling would have been required, but this situation was not encountered. Comparison of the maximum data value for each analyte to the clean-closure standards ensured that all individual analytes were below the action levels. Verification of the null hypothesis through VSP determined if the mean value of the site analytical data supported rejection of the null hypothesis.

7.4.4 Documents and Records (Closure Plan Section 4.6.2.7)

The SAP included in the Closure Plan was followed by field personnel. The project file contains the records or references to their storage locations. The following items are included in the project file:

- Field logbooks or operational records
- Data forms (especially those that are not part of the field logbook)
- GPS data
- Chain-of-custody forms
- Sample receipt records
- Inspection or assessment reports and corrective action reports

8.0 DEMOLITION ACTIVITIES

Demolition of the 207-A SRB included the removal of the basin storage cells. The generator and storage requirements of WAC 173-303-200, “Accumulating Dangerous Waste On-Site,” were followed. The demolition activities created waste that was disposed in the ERDF.

Field work began on September 28, 2015, with the isolation of piping to the 207-A SRB at the pump pit between the 207-A SRB and the 207-A North Retention Basin that was used to transfer the stored effluent to the 216-A-37-1 CRIB. The piping was removed at the south wall of pump pit and holes left by removal were filled. Excavation of the basin began with removal of the sidewalks and the

west basin cell. Excavation followed the cell configuration to ensure that the sides of the excavation were sloped to prevent cave-ins. The excavated basin structure was placed in ERDF cans and sent to ERDF or staged in a 90-day waste accumulation area. Soil Sement® was used as a fixative to prevent windblown dust and contamination spread. Water was also used to minimize dust and decontaminate equipment; however, the amount of water was minimized to avoid ponding or contaminant transport.

A debris loadout area was established to facilitate loading of ERDF cans on the west side of the excavation. Following removal of the basin structure, a barrier and signs were placed around the excavation to warn unauthorized persons to stay out.

Following filling, covers were placed on the ERDF cans to keep them closed during accumulation and transportation. Full ERDF cans that could not be transported directly to ERDF were taken to the 90-day accumulation area at the 275EA Warehouse. Seventy shipments of waste were transported to ERDF between October 6 and October 19, 2015. The total amount of waste generated was approximately 1,185 tons. Original Onsite Waste Tracking Forms were sent to ERDF with each container shipped. Original sample reports and a copy of the Original Onsite Waste Tracking Form for each ERDF container were retained and forwarded to the assigned waste specialist for inclusion in the project file following final waste disposition.

Once sampling results confirmed that contaminated soils had been removed and the underlying soil met the cleanup criteria, the 207-A SRB excavation footprint was backfilled and returned to the appearance and use of surrounding land areas to the degree possible, given the nature of the previous dangerous waste activity.

TABLE 1

207-A SOUTH RETENTION BASIN CLOSURE MINOR DISCREPANCIES

ISSUE	PLANNED RESOLUTION
None	None

REFERENCES

Analytical Quality Associates, Inc. 2016. Data Validation Report for CH2M HILL Plateau Remediation Company. VSR16-002 Project Waste & Fuels Chemical Validation – Level C. Albuquerque, New Mexico.

CH2M HILL Plateau Remediation Company (CHPRC). 2016a. Data Quality Assessment. DOE_RL-2016-70_R0. Revision 0.

CHPRC. 2016b. 207-A South Retention Basin Closure Report.

Washington State Department of Ecology (Ecology), U.S. Environmental Protection Agency, and U.S. Department of Energy. 1989. Hanford Federal Facility Agreement and Consent Order Action Plan, as amended. Olympia, Washington.

Ecology. 2016. Hanford Facility Resource Conservation and Recovery Act Permit. Dangerous Waste Portion. Revision 8C for the Treatment, Storage, and Disposal of Dangerous Waste. Revision 8C.2016.6F. October 6.

GEL Laboratories. 2016a. Analytical Report from Sample Batch 385608. Revision 1. January 14.

GEL Laboratories. 2016b. Analytical Report from Sample Batch 385607. Revision 1. January 21.

Test America Laboratories Inc. 2015. SDG SL2012. December 4.

ATTACHMENT A

207-A SOUTH RETENTION BASIN CLOSURE FIELD DOCUMENTS

(Seven Sheets)

PROJECT	NO.	DATE
207A Closure	15-188	6 August 2015

SUBJECT	BY	SHEET
Predemolition Survey	T.O.	1 of 1

AKANA COMPUTATION SHEET

0800 Meet at 207A.
Steve Trent
Neal Fastabend
Jennifer

Earl Pritchard (not present) is the site PM.

Discuss what is to be surveyed.

Decide to survey corners of each of 3 basins plus all construction joints at top of basin.

Will also locate all visual cracks.

Will also locate pipe penetrations (2) at north end of each basin.

Cracks are not too large. Basin 1 in worst shape.

Central construction joint runs all the way through the middle of the bottom of basin.

Dirt in bottom of basin obscures flat bottom so hard to determine condition.

Construction joint looks to run all the way around the perimeter of the bottom.

Sides of Basin 3 are in better condition that Basins 1+2 but bottom is cracked pretty bad.

1000 Done.

207A South Basin	15-188	28 SEP 15
PROJECT	NO.	DATE
Demolition	T.O.	1 of 1
SUBJECT	BY	SHEET

AKANA COMPUTATION SHEET

0630 Pre Sus Meeting @ 100K. Mod 1103.

- Demo area will be RBA + Asbestos Area
- Will start with air gap of piping between basins and pump house north of basins.
- Core samples beneath impoundment basins have been collected. Request information from J. McKibben.

0730 Mobilize to 207A in 200E.

0845 Begin excavation to remove/sever piping between pumphouse and basins.

1045 Break for lunch.

1300 Return from lunch.

Because area is being treated as RBA need Rad Worker I or escort. Will also need TLD to enter the area once demolition of basins begins.

Cut inlet + outlet pipes. Outlet pipes have some liquid (water). All pipes wrapped with tar paper. Samples collected for asbestos. Radiological screening comes up clean.

1445 Complete overnight for day. Remaining activities related to posting + securing area.

207-A South Basin	15-188	29 SEP 15
PROJECT	NO.	DATE
Demolition	TD.	1 of 1
SUBJECT	BY	SHEET

AKANA COMPUTATION SHEET

0630 At MO1103 in look for pre-job. Due to pipe location and configuration identified yesterday, cold + dark work package (pipe isolation) and demolition work package have to be modified. This will take most of morning.

1130 At 207A. Engineering + other reps visually inspect isolation work completed so far to allow work package modification sign-off.

1230 Complete demolition pre-job meeting at MO1103.

1315 Start demo. Black rubber liner under concrete of east wall of basin. looks intact. Concrete has 4x4 wire mesh for reinforcement. CHPRC collects sample of liner for asbestos.

1530 Done for the day. Offsite.

PROJECT	NO.	DATE
207-A South Basin	15-188	~~29~~ 30 SEP 15
SUBJECT	**BY**	**SHEET**
Demolition	T.O.	1 of 1

AKANA COMPUTATION SHEET

0630 At MO1103 in 100K for pre-job. Continue demolition.

0720 At 207A South to begin work for day.

Continue removal of basin wall between cells 2 + 3. Talk with E. Pritchard and J. McKibben regarding my concerns with underlying soil movement/removal. Closure plan would seem to indicate the resulting excavation will be a clean rectangle 3 feet wider and deeper than current configuration (no sloping sidewalls of dirt between cells. Remove 2 roll-offs ("cans") of debris from site. Liner beneath concrete appears continuous and in good condition.

1100 Lunch

1230 Resume work. Remove wall on north side of cell 2 to allow entry into pit between basin + valve house so that severed pipes can be foamed/sealed. Pit is then filled with "clean" dirt from under basin walls and previous excavation of pit. Express my concerns to J. McKibben that the fill material is of unknown quality.

1400 Done for day. Offsite.

PROJECT	NO.	DATE
207A South Basin	15-188	20CT15 10CT15
SUBJECT	BY	SHEET
Demolition	T.O.	1 of 1

AKANA COMPUTATION SHEET

0630 Prejob meeting at M01103 in rook.

0800 Work begins at 207A. Continue backfill of piping pit with dirt from below basins. Continue removal of basins. Liner has been to be non-asbestos. Pipe-wrap determined to be asbestos containing (Class 2 non-friable).
Load out 4 cans during morning shift.

1100 Lunch

1300 Return to site. Continue excavation in cell 3. Load out 6 additional cans. Liner continues to appear continuous and in good condition.

1530 offsite.

20CT2015

0600 onsite. Prejob meeting at M01103 rook.

0645 At 207A to continue demo. Finish work in cell 3. Move into cell 2. Several large panels removed from basin walls cleanly revealing undisturbed soil below w/ no evidence leakage. Load out 9 cans during morning shift.

1100 Lunch

1200 Continue work in cell 2. Note that inlet pipe to cells 1 + 2 were foamed in at concrete entry to cells. Verify the continuous presence of liner and water stop between cell walls and cell floor. Load out 6 cans during afternoon shift.

1545 offsite.

PROJECT	NO.	DATE
207A South Basin	15-188	4 OCT 15 3 OCT 15
SUBJECT	BY	SHEET
Demolition	T.O.	1 of 1

AKANA COMPUTATION SHEET

0600 Prejob meeting at M0/103 in 100K.

0645 At 207A to begin work. Rain this morning will delay the availability of cans because RCTs cannot work when raining (wet). Excavation will continue to stockpile demolition debris to the west of the basins.

0800 Rain stops. Are able to remove 4 additional cans during morning shift. Demo in basin 2 complete, move to Basin 1.

1100 Lunch

1230 Resume work. Demo crew begins using backhoe to safely slope remaining walls & reduce any remaining debris. Talk to E. Pitchford about need to characterize soil used to backfill pipe excavation.

1545 Complete for day

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4 Oct 15

0600 Prejob at M0/103 in 100K.

0730 Begin demo to line concrete + rubble removal. Working in cell 1. Hand crews begin work in cells 2+3 to remove any remaining visible debris (concrete, wood, plastic, caulking, etc.). Note that due to backhoe work, surface soil may not be representative of material underlying basins - may have to modify sampling approach. Hand crews also finish clearing cell 1.

1100 Lunch

1270 Remove inlet/outlet piping from all 3 basins. Hand crews clean up visible debris. RCTs clear RBA (start surveying).

1500 Offsite.

PROJECT	NO.	DATE
207A South	15-188	12 NOV 15
SUBJECT	**BY**	**SHEET**
Sample Collection	T.Q	1 of 1

AKANA COMPUTATION SHEET

0715 Onsite. RCTs clearing sample locations.

0755 Samplers show up.

Ecology wants to split ~~8, 12, 15~~ 8, 9, 22. Those samples will be collected first.

Observe

207-A-9
207-A-8
207-A-FS-22
207-A-15 (Dup)
207-A-FS-29
207-A-FS-28
207-A-5
207-A-FS-27
207-A-FS-24 (Blank)
207-A-3
207-A-FS-26
207-A-FS-23
207-A-6 (Dup

207-A-7
207-A-FS-21
207-A-2
207-A-4
207-A-10 (Dup)
207-A-20
207-A-19
207-A-14
207-A-18
207-A-17
207-A-16
207-A-11
207-A-1

Also observe sample packaging + paperwork in trailer. 32, 31, 30

* Paperwork notes no Arion analysis.

At location 207-A-20, there are a couple of pieces of concrete with coating in the hole they collect the SVOC sample from.

Also a small piece in 207-A-17.

1330 Offsite.