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(a) Author (Print/Sign): H. A. Sydnor	Date: 11/23/2009
(b) Responsible Manager (Print/Sign): S. J. Eberlein	Date: 11/23/2009
(c) Reviewer (Optional, Print/Sign):	Date:
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Completion Report for 241-SX Tank Farm Direct Push Barrier Characterization

R. Z. Steffler
EnergySolutions Federal Services, Inc.
Richland, WA 99352
U.S. Department of Energy Contract DE-AC27-08RV14800

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Abstract: This report is a summary of direct push activities relating to interim barrier characterization at 241-SX Tank Farm.

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COMPLETION REPORT FOR 241-SX TANK FARM DIRECT PUSH BARRIER CHARACTERIZATION

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

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC27-08RV14800

washingtonriver
protectionsolutions

P.O. Box 850
Richland, Washington 99352

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Revision 0

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TERMS

Energy*Solutions*	Energy*Solutions* Federal Services, Inc.
RPP	River Protection Project
WAC	*Washington Administrative Code*
DOW	Description of Work
WRPS	Washington River Protection Solutions, LLC

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COMPLETION REPORT FOR 241-SX TANK FARM DIRECT PUSH BARRIER CHARACTERIZATION

1.0 INTRODUCTION

The U.S. Department of Energy assigned the River Protection Project (RPP) Washington River Protection Solutions, LLC (WRPS) Richland, Washington, to collect and provide subsurface data from inside and near the SX Tank Farm located in the 200 West Area of the Hanford Site. WRPS contracted Energy*Solutions* Federal Services, Inc. (Energy*Solutions*) to perform the field activities required to gather this data. This data was intended to provide information about the distribution and movement of contaminants in the vadose zone under and adjacent to the tank farms, and it will be used for eventual retrieval of stored tank waste and closure planning for the single-shell tanks.

FSWO-DOW-027, *Description of Work: 241-SX Tank Farm Direct Push Barrier Characterization*, Rev. 0 (see Appendix A) provides a detailed description of the scope of work performed. Energy*Solutions* was responsible for the provision of equipment and personnel to conduct the direct push activities, soil sample collection, and safety oversight. The following were included in the overall Energy*Solutions* work scope: Providing for global positioning surveys, providing subcontract geophysical logging services, providing technical support and preparing final reports. The following appendices contain copies of documentation generated during the performance of the above work scope.

Appendix A, FSWO-DOW-027, *Description of Work: 241-SX Tank Farm Direct Push Barrier Characterization*, Rev. 0
Appendix B, Global Positioning System Coordinates and Map
Appendix C, Drilling and Sampling Daily Work Records
Appendix D, Small Diameter Geophysical Logging for SX Tank Farm Barrier Characterization
Appendix E, Chain of Custody Forms and Field Logbook Entries
Appendix F, Washington State Department of Ecology Documents
Appendix G, Safety Documentation

2.0 SUMMARY OF ACTIVITIES

April 14, 2009, drilling equipment and support items were staged at the first SX Tank Farm investigative location. FSWO-DOW-027, Rev. 0 (Appendix A) was prepared and submitted the month prior. The description of work provides detailed work instructions and information for conducting characterization efforts inside the SX Tank Farm and near

the SX Tank Farm west boundary fence. A hydraulic hammer unit was used for placing 30 exploration boreholes to refusal, or the approximate target depth of 45.72 to 48.77 meters (150 to 160 feet) below ground surface for geophysical logging and sample collection. Twenty-one investigative sites were initially outlined as exploratory boreholes, with a total of 42 pushes planned. Thirteen of the 21 investigative boreholes outlined in the DOW were used for geophysical logging. Three of the investigative boreholes (C7187, C7185 and C7191) met unexpected refusal. The boreholes were decommissioned and new boreholes were pushed within 0.61 meter (2 feet) of the original location. The original boreholes were then identified with an “A” following their identification number. Neither C7187A nor C7187 were pushed to planned depth. Both met refusal between 7.32 and 7.62 meters (24 and 25 feet). The Vadose Project Technical Point of Contact chose to abandon that location for further exploration. Extreme hard geological layers caused the push rod to break in several boreholes. After several attempts to retrieve broken push rod, the Vadose Project Technical Point of Contact chose to decommission the boreholes, leaving some broken rod in the ground. Boreholes C7172, C7154, C7154A and C7192A were decommissioned with push rod abandoned in the subsurface.

The exploratory locations were selected based on ground-penetrating radar data and as-built infrastructure drawings. The initial investigation included geophysical logging from total depth to surface, utilizing a Bismuth Germanium Oxide spectral gamma scintillation detector and a neutron-neutron moisture probe. The logging data is intended to aid in defining the extent of subsurface contamination. Logging results detected no Cs-137 above the minimum detection level in boreholes C7153, C7155, C7157 and C7169. Cs-137 was detected near the surface in boreholes C7171, C7177, C7179, C7181 and C7191, while C7167, C7183 and C7185 displayed activity greater than 3.05 meters (10 feet) below ground surface. The maximum concentration of 8.0 pCi/g of Cs-137 was located in borehole C7185 at a depth of 1.83 meters (6.0 feet). Three boreholes (C7167, C7183 and C7191) displayed low-energy gamma activity that is not from isotopes analyzed. Sixty-five rods were taken out of service and disposed of due to radiological contamination. Detailed results from the geophysical logging efforts are provided in Appendix D.

At the discretion of the Vadose Project Technical Point of Contact, offset boreholes were then pushed for sampling purposes at designated locations. These sample locations were chosen based on previous geophysical logging data. As with the logging boreholes, some sample boreholes met refusal, or the push rod broke before all sampling was completed. Those boreholes are also identified with an “A” following their identification number. Borehole C7154, C7170 and C7192 are a result of complications that impeded the completion of the original sample borehole. Boreholes C7154A and C7192A were decommissioned and abandoned after push rod breakage and C7170A was decommissioned once it met refusal at 18.29 meters (60 feet). Sampling information is provided in Table 1 and Appendix E.

The hydraulic hammer unit and associated personnel initially began mobilization and site setup April 13, 2009. They commenced pushing their first borehole for this task the

following day. One hydraulic hammer unit and crew were deployed on the project for 23 days before a second hydraulic hammer unit and crew were also committed. The work scope was completed August 25, 2009, with demobilization commencing the following two days. With mobilization and demobilization, there were 97 field days that both hydraulic hammer units and crews were dedicated to the SX Tank Farm activities. There were 421.5 hours of down time associated with this task. For exact dates and explanations of down time, refer to the Drilling and Sampling (Percussion) Daily Work Records located in Appendix C.

3.0 DIRECT PUSHING, SAMPLING AND LOGGING DETAILS

3.1 DIRECT PUSHING

Per FSWO-DOW-027, Rev. 0, exploration hole placement and sampling was accomplished with the use of a hydraulic hammer system mounted on a tractor-type carrier. For investigative purposes, a 6.35 centimeter (2.5-inch) outside diameter x 4.45 centimeter (1.75-inch) inside diameter casing was driven at predetermined locations to specified depths, or refusal. Once a push location was geophysically logged, the data was reviewed by WRPS personnel and sample locations and depths were selected. At designated boreholes, a second location within 0.6 meter (2 feet) of the exploratory hole was then pushed for sample retrieval.

3.2 SOIL SAMPLING

Soil sampling with the rotary hammer unit was accomplished with the dual-wall sampling system. With the dual-wall system, once sample depth has been reached, the inner rod with the dummy drive tip is removed, and the drive tip is replaced with a sampler. The sampler consists of a 6.67 centimeter (2.625-inch) outside diameter x 4.76 centimeter (1.875-inch) inside diameter outer sample barrel, which holds a 4.13 centimeter (1.625-inch) outside diameter x 48.63 centimeter (18.75-inch) long inner sample barrel. The inner sample barrel houses three 3.18 centimeter (1.25-inch) outside diameter x 15.24 centimeter (6-inch) long stainless steel sample liners. Once the sampler and inner rod have been lowered and seated into the outer drive rod, the two are simultaneously advanced far enough to ensure that the sampler is completely filled with material. Unless refusal is met, the sampler is typically driven 0.61 meters (2 feet). Table 1 shows locations, intervals, sample numbers and percent of sample recovered.

Table 1. Sample Intervals.

Borehole Number	Depth In Feet	Sample Number	Percent Recovery
C7154A	74.0 – 76.0	B206P6, B206P7	100%
C7154	106.0 – 108.0	B206P8. B206P9	100%
C7156	NA	B20766	Water equipment Blank
	92.0 – 94.0	B206R2, B206R3	100%
	126.0 – 128.0	B206R4, B206R5	100%
	140.0 – 142.0	B206R6, B206R7	100%
C7158	87.0 – 89.0	B206R8, B206R9	100%
	124.0 – 126.0	B206T0, B206T1	100%
	141.0 – 143.0	B206T2, B206T3	100%
C7168	81.0 – 83.0	B206W8, B206W9	100%
	129.0 – 131.0	B206X0, B206X1	100%
	145.0 – 147.0	B206X2, B206X3	100%
C7170	81.5 – 83.5	B206X4, B206X5	100%
	113.0 – 115.0	B206X6, B206X7	100%
	133.0 – 135.0	B206X8, B206X9	100%
	150.0 – 152.0	B20H47, B20H48	100%
C7172	46.0 - 48.0	B206Y0, B206Y1	100%
	75.5 - 77.5	B206Y2, B206Y3	100%
	97.5 - 99.5	B206Y4, B206Y5	100%
	126.0 - 128.0	B20H51, B20H52	100%
C7178	89.0 - 91.0	B20708, B20709	100%
	127.0 - 129.0	B20710, B20711	100%
	151.0 - 153.0	B20712, B20713	100%
C7180	86.0 - 88.0	No Sample	0%
	93.0 – 95.0	B20714, B20715	100%
	104.0 – 106.0	B20716, B20717	100%
	127.0 – 129.0	B20718, B20719	100%
	152.0 – 154.0	B20H67, B20H68	100%

Table 1. Sample Intervals.

Borehole Number	Depth In Feet	Sample Number	Percent Recovery
C7184	83.0 – 85.0	B20727	25%
	104.0 – 106.0	B20728, B20729	100%
	128.5 – 130.5	B20730, B20731	100%
	141.0 – 143.0	B20VK6, B20VK7	100%
C7186	NA	B20768	Water Equipment Blank
	105.0 – 107.0	B20732, B20733	100%
	128.0 – 130.0	B20734, B20735	100%
	145.0 – 147.0	B20736, B20737	100%
C7192A	100.0 – 102.0	B20750, B20751	100%
C7192	128.0 – 130.0	B20752, B20753	100%
	140.0 – 142.0	B20754, B20755	100%

The sample tip, drive head, sample liners, and inner sample barrel were cleaned by CH2M HILL Prime Remediation Contractor Groundwater Sampling Operations Group using standard *Resource Conservation and Recovery Act of 1976* protocol cleaning methods in accordance with GRP-FS-04-G-013, *Laboratory Cleaning of Sampling Equipment*. This cleaning ensured that no cross contamination was introduced from previous use of the equipment or from the manufacturing process.

Samples were obtained and analyzed in accordance with WRPS Sample Authorization Form #V09-004 and V09-005. Samples were analyzed for ICP metals, anions, alkalinity, pH, radioisotopes and several other analytes. Copies of the sample authorization forms, chain of custody forms, and field logbook notes are provided in Appendix E.

3.3 GLOBAL POSITIONING SATELLITE SURVEYING

With the use of a Trimble[1] 5800 Global Positioning Satellite Survey system and per FSWO-DOW-027, Rev. 0, the original locations of the exploratory boreholes were identified using paint and stakes. Once the task was completed and the boreholes decommissioned, each exploratory and sample borehole was recorded for accuracy. These recorded coordinates were placed on a map showing their locations in direct relation to the underground storage tanks in the vicinity. The coordinates, elevation and a map showing completed push locations/boreholes are provided in Appendix B.

[1]Trimble is a registered trademark of Trimble Navigation Ltd., Sunnyvale, California.

3.4 GEOPHYSICAL LOGGING

Pacific Northwest Geophysics and Three Rivers Scientific conducted the geophysical logging data collection and analysis services on the exploration 6.35 centimeter (2.5-inch) probe boreholes. For the geophysical logging, a portable small diameter logging system was used to collect spectral gamma and moisture data from the bottom of the borehole to the ground surface. Calibration details, survey results and data interpretation, as well as copies of the collected and processed log data, are provided in Appendix D.

4.0 BOREHOLE DECOMMISSIONING

Decommissioning of all the boreholes was conducted in accordance with the *Washington Administrative Code* (WAC) 173-160 requirements. While decommissioning the sample boreholes, the tubing was back pulled while granular bentonite was simultaneously added to the tubing until it reached the surface. Logging boreholes required decommissioning while simultaneously placing resistivity probes. This was done by knocking the drive tip out of the bottom of the tubing, and back pulling the tubing and filling it with bentonite to near the desired probe placement depth. Silica sand was then added to the depth at which the resistivity probe was to be placed. The resistivity probe was placed and additional sand (approximately 1.52 meters [5 feet]) was then added to the borehole, encasing the probe in sand. Fifteen to 19 liters (4 to 5 gallons) of saline water were then added. Granular bentonite was then placed from above the sand to near the next probe depth. The process was repeated for multiple probe installations. Once the probes were installed, granular bentonite was added from above the silica sand to surface while back pulling the remaining tubing. A protective steel casing was cemented in place approximately 30.48 centimeters (12 inches) deep at the surface to protect the protruding probe wiring. Per WRPS personnel, exploratory holes C7185A, C7187A, C7187 and C7191A did not have resistivity probes installed due to shallow refusal depths. Washington State Department of Ecology documentation is provided in Appendix H.

Table 2 shows the logged and sample boreholes, coordinates, pushed depths and resistivity probe placement depths.

Table 2. Borehole Information.

Borehole # and Type	Northing (In meters)	Easting (In meters)	Elevation (In meters)	Hole Depth (In feet)	Probe Depth
C7153 Logging	134235.0	566692.8	202.570	156.00	142.0 ft. and 76.0 ft.
C7154A	134235.4	566693.0	202.496	93.00	NA
C7154 Sampling	134236.0	566693.0	202.496	117.00	NA
C7155 Logging	134204.3	566705.1	202.586	156.00	128.0 ft. and 81.0 ft.
C7156 Sampling	134203.5	566705.1	202.545	142.00	NA
C7157 Logging	134180.0	566709.8	202.548	160.00	142.0 ft. and 89.0 ft.
C7158 Sampling	134179.3	566709.8	202.503	143.00	NA
C7167 Logging	134162.2	566826.1	203.103	152.00	146.0 ft. and 72.0 ft.
C7168 Sampling	134162.5	566825.4	203.024	147.00	NA
C7169 Logging	134162.7	566789.3	202.707	160.00	144.0 ft. and 74.0 ft.
C7170A	134162.6	566790.3	202.600	60.00	NA
C7170 Sampling	134163.0	566788.6	202.579	152.00	NA
C7171 Logging	134178.9	566747.5	202.663	157.60	144.0 ft. and 70.0 ft.
C7172 Sampling	134178.1	566747.5	202.707	131.00	NA
C7177 Logging	134217.9	566745.9	202.564	157.00	143.0 ft. And 75.0 ft.
C7178 Sampling	134217.6	566744.9	202.459	153.00	NA

Table 2. Borehole Information.

Borehole # and Type	Northing (In meters)	Easting (In meters)	Elevation (In meters)	Hole Depth (In feet)	Probe Depth
C7179 Logging	134231.5	566745.1	202.743	156.00	145.0 ft and 76 ft.
C7180 Sampling	134230.7	566744.9	202.739	154.00	NA
C7181 Logging	134247.3	566747.5	202.528	156.00	142.0 ft. and 75.0 ft.
C7183 Logging	134272.0	566752.6	202.592	154.0	148.0 ft. and 66.0 ft.
C7184 Sampling	134272.8	566752.6	202.530	143.0	NA
C7185A	134258.8	566788.8	202.685	52.0	NA
C7185 Logging	134258.8	566788.4	202.707	156.0	143.0 ft. and 58.0 ft.
C7186 Sampling	134259.1	566787.8	202.635	147.0	NA
C7187A	134260.9	566822	202.995	24.0	NA
C7187	134259.9	566821.3	203.017	24.5	NA
C7191A	134229.1	566854.0	203.038	80.00	NA
C7191 Logging	134228.5	566854.0	203.038	156.6	142.0 ft and 96.0 ft.
C7192A Sampling	134228.5	566853.6	203.103	117.70	NA
C7192 Sampling	134227.9	566853.6	203.103	142.0	NA

5.0 ENVIRONMENTAL, SAFETY AND HEALTH

During the SX Tank Farm activities, the job site was surveilled by Energy*Solutions* Operations Safety for safety and health compliance. The results of the surveillances performed by Energy*Solutions* are provided in Appendix G. The work scope conducted

under the subject statement of work was completed with no lost time, reportable *Occupational Safety and Health Act of 1970* injuries, or first aid cases, and there were no incidences of equipment or personnel radiological contamination.

6.0 REFERENCES

GRP-FS-04-G-013, *Laboratory Cleaning of Sampling Equipment*, Groundwater Remediation Project Environmental Engineering Procedure, Fluor Hanford, Richland, Washington.

WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," *Washington Administrative Code*, as amended.

Resource Conservation and Recovery Act of 1976, 42 USC 6901 et seq.

Occupational Safety and Health Act of 1970, 29 USC 651 et seq.

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APPENDIX A

FSWO-DOW-027, *DESCRIPTION OF WORK: 241-SX TANK FARM DIRECT PUSH BARRIER CHARACTERIZATION*, REV. 0

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DESCRIPTION OF WORK
241-SX TANK FARM DIRECT PUSH BARRIER CHARACTERIZATION

March 2009

Prepared for
Washington River Protection Solutions, LLC

by
Remediation and Well Services
Energy*Solutions* Federal Services, Inc., Northwest Operations

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FIGURE

Figure 1. 241-CR-151 Diversion Box Borehole Locations. 3

TABLE

Table 1. Coordinates for up to 21 Exploration Direct Pushes. 7

TERMS

DOE	U.S. Department of Energy
DOW	description of work
Ecology	State of Washington Department of Ecology
Energy*Solutions*	Energy*Solutions* Federal Services, Inc., Northwest Operations
ES&H	Environmental, Safety, and Health
ID	inside diameter
OD	outside diameter
RCRA	*Resource Conservation and Recovery Act of 1976*
SST	single-shell tank
WAC	*Washington Administrative Code*
Well ID	Well identification
WMA	waste management area
WRPS	Washington River Protection Solutions, LLC

DESCRIPTION OF WORK: 241-SX TANK FARM DIRECT PUSH BARRIER CHARACTERIZATION

1.0 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The U.S. Department of Energy (DOE) Office of River Protection and the State of Washington Department of Ecology (Ecology) (the regulator for *Resource Conservation and Recovery Act of 1976* [RCRA] treatment, storage, and disposal facilities) have agreed that a RCRA Corrective Action Project be created with explicit milestones. These milestones are part of the *Hanford Federal Facility Agreement and Consent Order* (part of the M45 milestone series).

The intent of the single-shell tank (SST) waste management areas (WMA) characterization program is to collect samples that have or have not contacted tank waste. These SST farms are designated as radiological buffer areas or contamination areas. The Tank Farm Vadose Zone Project is managing the RCRA Corrective Action Program. This program includes collection of subsurface vadose zone data.

The DOE assigned the River Protection Project Single-Shell Tank Program the tasks of transferring waste from the SSTs to double-shell tanks, and developing and implementing a strategy to retrieve SST and miscellaneous underground storage tank waste. The Single-Shell Tank Program Vadose Zone Project was given responsibility for collecting and providing subsurface data from the SST farm facilities. This contributes to preparation for the eventual retrieval of the storage tank waste. The data that is being collected is intended to provide an understanding of the distribution and movement of contaminants in the vadose zone under and adjacent to the tank farms. The intent of the SST WMA's characterization program is to collect samples that have or have not contacted tank waste.

A multi-discipline team consisting of Washington River Protection Solutions, LLC (WRPS, also known as the Tank Operating Contractor) personnel, including Energy*Solutions* Federal Services, Inc., Northwest Operations (Energy*Solutions*), and other lower-tier subcontractors, is necessary to implement the field activities of the site-specific work plans. This description of work (DOW) identifies specific actions for characterization efforts in support of barrier design and placement for 241-SX Tank Farm.

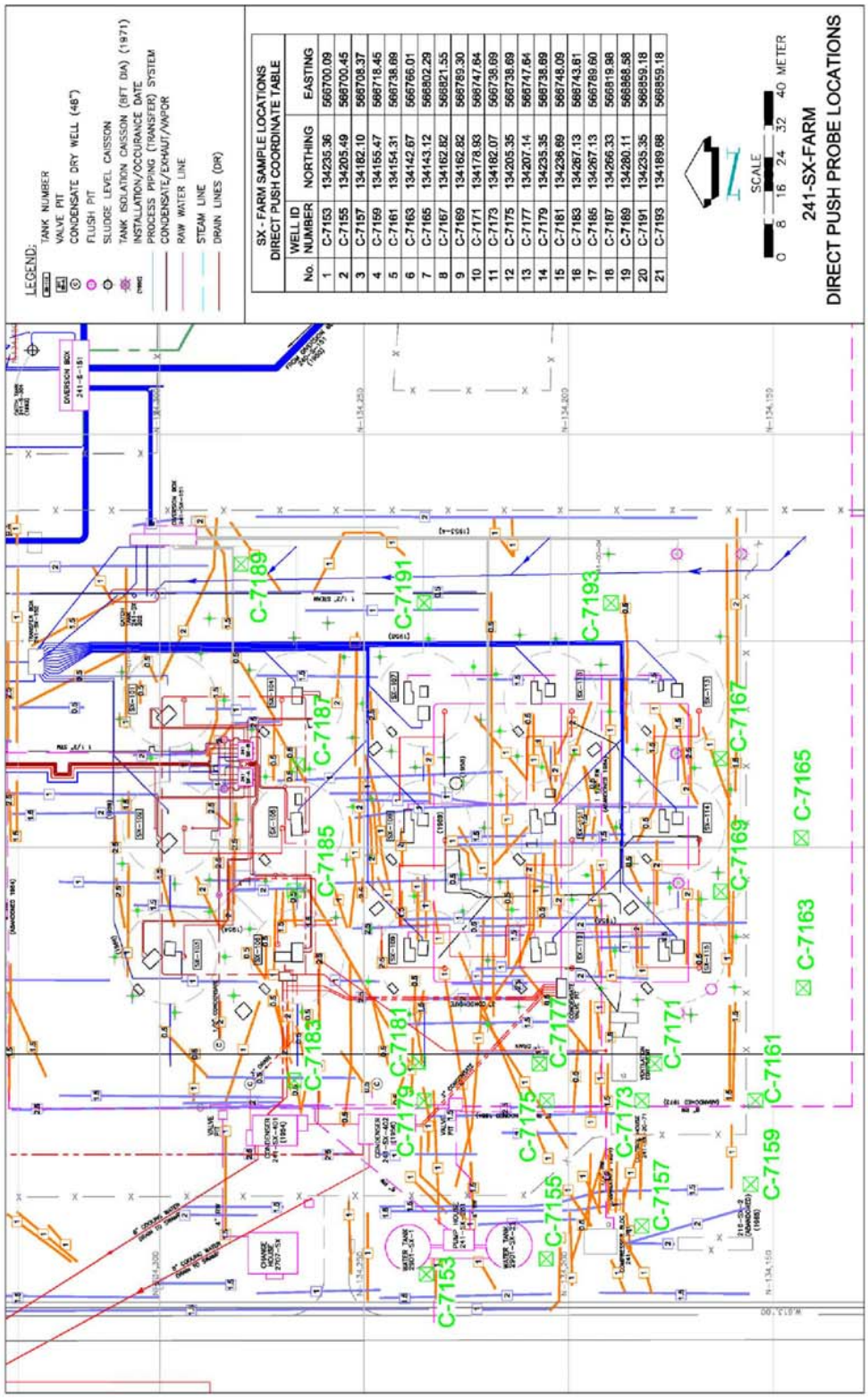
This work is being conducted at the direction of the WRPS Vadose Zone Characterization Group. This DOW provides the work instructions for conducting the characterization and sampling efforts.

1.2 TANK FARM BACKGROUND

The Hanford Site has 149 underground SSTs that store hazardous radioactive waste. These tanks are grouped into 12 tank farms that are further grouped into eight WMAs and are regulated under RCRA. Many of these tanks have leaked, and there have been leaks in the associated infrastructure (e.g., pipelines, diversion boxes). Some of the leaked waste has entered groundwater.

Current planning includes placement of interim surface barriers at certain single-shell tank farms. The first of such was placed in fiscal years 2007 and 2008 over a portion of T Tank Farm. A second interim surface barrier has been proposed to mitigate the transport of contaminants from TY Tank Farm releases to groundwater, and engineering for placement of the TY barrier is currently underway. As a portion of the continuing interim surface barrier planning, an additional barrier has been proposed to mitigate the transport of contaminants from SX Tank Farm releases to groundwater. According to an analysis based on DOE/ORP-2005-01, *Initial Single-Shell Tank System Performance Assessment for the Hanford Site,* installing and maintaining of interim barriers would potentially reduce groundwater impacts.

Figure 1 below is a general location map of the 241-SX Singe-Shell Tank Farm. This map shows the proposed exploration push locations and details of the known below-ground infrastructure.



SX - FARM SAMPLE LOCATIONS DIRECT PUSH COORDINATE TABLE

No.	WELL ID NUMBER	NORTHING	EASTING
1	C-7153	134235.36	566700.09
2	C-7155	134205.49	566700.45
3	C-7157	134182.10	566708.37
4	C-7159	134155.47	566718.45
5	C-7161	134154.31	566738.69
6	C-7163	134142.67	566766.01
7	C-7165	134143.12	566802.29
8	C-7167	134162.82	566821.55
9	C-7169	134162.82	566789.30
10	C-7171	134178.93	566747.64
11	C-7173	134182.07	566738.69
12	C-7175	134205.35	566738.69
13	C-7177	134207.14	566747.64
14	C-7179	134235.35	566738.69
15	C-7181	134236.69	566748.09
16	C-7183	134267.13	566743.81
17	C-7185	134267.13	566789.60
18	C-7187	134266.33	566819.98
19	C-7189	134280.11	566868.58
20	C-7191	134235.35	566859.18
21	C-7193	134189.68	566859.18

Figure 1. 241-SX Tank Farm Direct Push Borehole Locations.

1.1.2 Physical Setting

The SST WMA tank farms were constructed in excavations into the near-surface sediments that overlie the Columbia River Basalt Group. Columbia River basalt forms the basement bedrock. Up to approximately 150 m (500 ft) of continental sediments overlie basalt. From oldest to youngest, these deposits include the following.

- Several facies of the Miocene-to-Pliocene age, fluvial-lacustrine Ringold Formation.
- Variably cemented and pedogenically altered deposits of the Plio-Pleistocene unit, which developed on the eroded and weathered surface of the Ringold Formation.
- A relatively loose, fine-grained silty-to-sandy unit designated the Hanford formation/Plio-Pleistocene unit interval.
- Deposits from Pleistocene age cataclysmic floods (i.e., Hanford formation) that blanket the study area with mostly sand- and silt-dominated facies, capped by a sequence of gravel-dominated facies.

2.0 METHODOLOGY

The method selected to outline the vertical and horizontal extent of contamination is a hydraulic hammer-driven probe system mounted on a tractor-type carrier. For this application, points (locations) for investigation (exploration) are selected through an iterative process as outlined in Section 3.0. Sample depths are to be determined by review of neutron-neutron moisture and bismuth germinate oxide spectral gamma geophysical logging data. Initially 12 investigative sites have been outlined for exploratory push investigation and geophysical log data collection. An additional seven locations may be added at the direction of the WRPS Technical Lead. The coordinates for all 21 locations are listed in Table 1 below and on Figure 1 above. All of the exploratory push locations will be advanced to approximately 41 to 44 m (134.5 to 145 ft) below ground surface or refusal. This target depth is intended to interrogate from surface to the cemented portion of the Lower Cold Creek Unit (cemented caliche). Current planning is for up to 42 total pushes at the 21 investigative sites indicated. These sites are inside and immediately adjacent to the SX fenced area. A total of 63, or more, soil samples may be collected if all 21 sites are explored and sampled. Current planning is for an average of three samples per sampling location. This may be altered (e.g., more than or less than three per location) at the direction of the WRPS Technical Lead. These samples will be collected at various depths, selected based on geophysical log data. For all pushes (sample or exploratory) greater than 9.14 m (30 ft) in total depth, we will obtain an Ecology-approved variance (as required by *Washington Administrative Code* [WAC] 173-160).

All sites are initially investigated by use of a single tubing string that is 6.4 cm (2.5-in.) outside diameter (OD) x 4.45 cm (1.75-in.) inside diameter (ID) (e.g., the exploratory push). This tubing is advanced to the target depth or refusal and geophysically logged with bismuth germinate oxide

gamma and neutron-neutron moisture instrumentation. The logging data is reviewed by the WRPS and Energy*Solutions* technical personnel to determine target sample collection points. The exploratory push hole will be decommissioned per applicable WAC 173-160 requirements (e.g., filled with bentonite or bentonite/cement grout as required) as the push tubing is extracted. A dual wall system (6.67 cm [2.625-in.] OD) will be deployed to collect samples in the selected sampling push locations.

2.1 MULTIPLE SAMPLE PUSH

There are 21 proposed sites in the 241-SX Tank Farm area that are planned as potential multiple sampling locations. Twelve of these sites will be interrogated during the initial phase of the SX deployment. The decision to place a sampling boring adjacent to the exploratory push will be made by the WRPS technical representative based on review of the geophysical data. Collection of as many as 60, or more, soil samples is planned for the SX Direct Push Barrier Characterization. The precise sampling depths and sites selected for sample collection will be based on review of the geophysical logging data collected from the exploratory push. The dual wall percussion system will be used to obtain multiple samples at each push location.

Multi-level sampling is conducted with a "dual-wall" system. This system consists of outer (drive) casing that is 6.67 cm (2.625-in.) OD x 4.76 cm (1.875-in.) ID and inner tubing that is 3.81 cm (1.5-in.) OD x 2.54 cm (1.0-in.) ID. The dual wall sampling system holds three stainless steel liners that are 3.17 cm (1.25-in.) OD x 2.7 cm (1.08-in.) ID. The WRPS Technical representative provides discreet depths for sampling, and the dual wall system with a "dummy" tip is advanced to the predetermined sample depth.

Steps for sampling are as follow.

- Drive to sample depth with dual wall in closed configuration (dummy point in place).
- Remove the tip.
- Place sampler on inner string and lower into place at the bottom of the drive casing.
- Drive sampler approximately 24"-26" to fill liners.
- Remove sampler from casing and package/transport materials.
- Replace tip and lock in place.
- Advance casing to next sample interval.

This process is repeated until all sample depths have been achieved or the tubing meets refusal. Upon completion of the final sample extraction, or upon meeting refusal, the dummy tip or sampler is removed and the borehole is decommissioned per WAC 173-160 requirements.

3.0 PUSH LOCATIONS

3.1 PUSH LOCATION DOCUMENTATION

Figure 1 above is a general location map of the 241-SX Tank Farm fenced and immediate surrounding area. Specific push locations are also identified in Figure 1. These locations were selected through an iterative process using ground-penetrating radar scan data and as-built infrastructure drawing reviews. The two data sets were compared and sites for placement of push locations were selected based on the highest level of confidence achievable on review of specific locations and ground scan trace comparisons. The final location coordinates of the selected sites (determined from the ground-penetrating radar and as-built review) were plotted with computer-aided drafting (see Figure 1 above). Push locations will be documented on Well Information Reports/Field Activity Reports. In addition to the coordinate position of the probe location, the push depth, geophysical log data and other pertinent information derived during the activity (e.g., depth of contamination as identified from geophysical log interpretation, degree of contamination observed on push rods during extraction) are included in the documentation.

3.2 PUSH LOCATION TABLES AND NUMBERING

All primary (exploratory) and sampling push location activities will be tracked and documented on Field Activity Reports by referencing the Well identification (Well ID) number provided in Table 1. If the collection of a sample is attempted, a unique Well ID number will be used to track the push location on the Field Activity Report, and the sample will be identified with that Well ID number on the sample label and the shipping documentation. Each sample depth/location is identified as an offset from the exploratory push that identified the depth of interest (e.g., target sampling depth). That is, if, during the exploratory push, a zone of interest is identified at a listed coordinate position, the sampling push unique number is determined by the original identification number plus one (e.g., if a zone of interest is identified during pushing at location 1 [in Table 1, Well ID C7153] the Well ID of the subsequent sampling push is C 7154). The unique Well ID numbers for all of the exploratory push locations are listed, and unique sample push Well ID numbers have been assigned and reserved for use during the 241-SX investigations by the Hanford Site Well Coordinator. All sampling and exploration push activities will be documented in the field activity reports and sampling chain of custody forms, and all exploration push locations will be identified prior to conducting the exploration push by use of global positioning survey equipment. Sampling location coordinates will be collected by use of global positioning survey equipment after conclusion of the sampling activity.

Table 1. Coordinates for up to 21 Exploration Direct Pushes.

No.	Well ID	Northing	Easting
1	C-7153 (D)	134235.76	566695.04
2	C-7155 (D)	134205.50	566700.45
3	C-7157 (D)	134180.12	566709.69
4	C-7159 (D)	134155.47	566721.41
5	C-7161 (D)	134154.31	566738.69
6	C-7163 (D)	134142.67	566766.01
7	C-7165 (D)	134143.12	566802.29
8	C-7167	134162.16	566826.18
9	C-7169	134162.82	566789.30
10	C-7171	134178.94	56647.64
11	C-7173	134182.07	566740.16
12	C-7175	134202.51	566740.04
13	C-7177	134217.70	566745.66
14	C-7179	134231.71	566744.96
15	C-7181	134247.52	566747.45
16	C-7183	134272.00	566752.56
17	C-7185	134258.90	566788.98
18	C-7187	134260.93	566821.86
19	C-7189 (D)	134279.45	566869.90
20	C-7191	134229.07	566853.90
21	C-7193 (D)	134189.68	566859.18

(D) = Deferred, waiting for direction from WRPS Technical Lead

4.0 WORK TASKS

4.1 SITE SETUP

The push equipment will be mobilized and a controlled work area set up surrounding the pre-selected and marked locations (See Table 1 and Figure 1 above). A pre-survey of the tractor and equipment will be conducted (per tank farm procedure) prior to moving the equipment into the work zone. As noted above, ground-penetrating radar scans and as-built drawing reviews and comparisons have been completed to properly select the push points. The equipment consists of a tractor-mounted mobile unit with a hydraulically powered hammer and mast system. Support equipment to be used during field activities will be mobilized into the work area as needed. A forklift will transport needed support equipment to and from the push locations. Tank farm personnel will provide support, as necessary, for guiding the equipment onto location and for subsequent movement of the unit to the listed push locations.

Tank farms radiological control technicians and nuclear chemical operators will be onsite to support work during activities that create potential personnel exposure. Contamination control

measures will consist of laying spill protection material beneath the equipment (when required). Spill protection can consist of placement of rubber matting, felt and/or plastic sheeting on and around the direct push unit when necessary and prudent. Control of the work area and control of potential contamination are aided by restricting site entries by unnecessary personnel. Tank farms health physics personnel will provide direction and support to ensure radiological protection is maintained for all personnel associated with the work.

4.2 PUSH POINT CONTROL

During advancement of the push hole, casing (push rods) will be driven into the subsurface by use of the hydraulic hammer impact system. The push locations have been positioned to avoid impacting known/mapped structures. The mapped points will be investigated with all due caution and careful observation of the push advance rates, and resistance will be observed to preclude damage to any tank farm infrastructures should the as-built drawings be in error. If rod advance indicates that obstructions are present, push advance will stop, the direct push equipment and work area will be placed in safe condition and the Vadose Project Engineer/Technical Lead (Harold Sydnor) or his designee and the tank farm shift supervisor will be notified. If during push operations the push point is deemed to be "at refusal" as defined by trained operators of the direct push equipment (refusal is defined as a minimum of one inch of advance per minute of impact operations), the depth will be noted in the Field Activity Report and the next sequential task as defined in Section 2, "Methodology," will be performed.

All activities using the hammer unit will conform to the manufacturer's operating manual and applicable procedures that relate to the specific phase of work. As the push rods are extracted from the exploratory and sampling holes, the onsite health physics technician will monitor for radiological contamination. WRPS tank-farm-qualified Nuclear Chemical Operators will perform any decontamination required. The sealing requirements for decommissioning of the push holes are defined in the appropriate sections of WAC 173-160.

4.3 GEOPHYSICAL LOGGING

At refusal or target total depth of the exploratory investigations, Pacific Northwest Geophysics will conduct logging operations to gather geophysical information. The following logging suites will be used.

1. Bismuth germanium oxide @ 100 sec/0.5 ft.
2. Additional logging with the "Red" and/or "Green" Geiger/Muller equipment, if necessary, based on observed bismuth germanium oxide results.
3. Moisture logging.

Logging data will be collected from the total depth to surface. The logging analyst, Energy*Solutions* site personnel and the WRPS Vadose Project Engineer will review the field log data. Based on the log data sets, a sampling interval may be selected. Logging activities will be

conducted in accordance with applicable Pacific Northwest Geophysics and Energy*Solutions* procedures and the Energy*Solutions* Quality Assurance and Data Management Plans.

5.0 SAMPLING

5.1 SAMPLING PROCESS

The sampling process will entail a multiple sampling methodology as described in Section 2.0.

After retrieving the sampler to surface, the sampling system will be disassembled and the stainless steel liners will be removed for packaging and shipment to the designated laboratory. If opening of the retrieved sampler would result in more than the allowable dose rates per the Radiation Work Permit, the samplers will be placed in transportation drums and either opened under controlled conditions at the designated laboratory or placed in a disposal container.

5.2 CLEANING

Quality control requires that all materials (e.g., sample liners, material retaining baskets [finger baskets], sample caps) used to perform sampling activities will be cleaned using U.S. Environmental Protection Agency guidelines/specifications as referenced in the RCRA. Cleaning of samplers, liners, etc. is the responsibility of the Nuclear Chemical Operator personnel subcontracted by WRPS for cleaning, handling, packaging, labeling and transporting the sample equipment. Materials used for push advance purposes (e.g., push rods, tips) will be high-pressure washed using an approved nonphosphate cleaner. The push materials will be visibly free of dirt, grease and other possible contamination, which would potentially provide for cross-contamination of retrieved samples. After being cleaned, the materials will be protected from unwanted contamination from surface chemicals and push operation-related chemicals. This protection will be accomplished by covering the materials with plastic or other acceptable materials, if necessary. The cleaned and protected materials will be tracked by use of cleaning certification documentation.

5.3 RINSEATE SAMPLES

Field equipment rinseate blanks may be required for analysis purposes. This determination and collection of these rinseate samples is the responsibility of WRPS and their designated subcontract personnel.

5.4 EXPLORATION AND SAMPLING PUSH HOLE DECOMMISSIONING

Applicable WAC requirements contained in WAC 173-160 will be used to control and guide actions for decommissioning the sampling and exploratory probe holes. Each probe and sampling hole will be filled with bentonite, a bentonite slurry and/or grout (neat cement or cement-bentonite mixture) during the push rod extraction process. At the direction of the WRPS Technical Lead restivity electrodes may be placed in selected exploration push boreholes. These electrodes will be sealed in place with sand and bentonite decommissioning materials and will have surface well head protection cemented in place, as per WAC 173-160 requirements.

6.0 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM

The primary concern for Energy*Solutions* and the client (WRPS) is the safety of personnel assigned to perform activities related to the 241-SX Barrier investigation/characterization. These issues are addressed and all Energy*Solutions*, WRPS, and applicable *Occupational Safety and Health Act of 1970* safety and health requirements are applied and adhered to during the field operations. An activity-specific Job Hazard Analysis outlines the specific activity hazards and the mitigation methodologies. The documentation governing the operation of the direct push rig, sampling, and decommissioning activities (AHA-09-001, *SX Barrier Direct Push Deployment Hydraulic Hammer Unit Operations,* Rev. 0, or most current revision) is included as a portion of the WRPS Tank Farm Work Package.

Energy*Solutions* Safety or WRPS Tank Farm Industrial Hygiene and Safety personnel, or both, will survey the job site for safety and health compliance. Energy*Solutions* personnel and safety representatives will provide onsite inspections and visits during drilling, sampling and decommissioning or construction activities to ensure compliance with the guidance outlined in the Activity Hazard Analysis. Routine inspection reports will be provided to the WRPS Technical Point of Contact (Harold Sydnor). At a minimum, an inspection will be conducted every two weeks or more often based on activities underway at the job site.

Energy*Solutions* subscribes to the Integrated Safety Management System and has implemented an Integrated Safety Management System approach into all of its work tasks. These requirements flow down, not only internally to Energy*Solutions* employees but also to Energy*Solutions* subcontractors. All of the following are in effect and will be observed, enforced and followed.

- Safety rules and procedures for safe job performance.
- Radiological Work Permit.
- WAC 173-160, as amended.
- *Occupational Safety and Health Act of 1970.*
- Client-identified standards.

These requirements are communicated to everyone associated with the project (visitors included) using the Energy*Solutions* Activity Hazard Analysis. The Activity Hazard Analysis is part of the Energy*Solutions* Environmental, Safety, and Health (ES&H) Program.

This program encompasses environment, safety and health, including pollution prevention and waste minimization. All work for this project will be analyzed in accordance with the five core functions of the Energy*Solutions* Integrated Safety Management System.

- Define the scope of work.
- Identify the work hazards and ES&H requirements.
- Analyze the work hazards and implement controls.
- Perform the work activity within the developed controls.
- Provide feedback on the adequacy of controls and safety management improvement.

The specific procedures used to accomplish these core functions are found in the Energy*Solutions* ES&H Program.

6.1 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM KEY ELEMENTS

- Line management is responsible for the protection of employees, the public, and the environment.
- Clear and unambiguous lines of authority and responsibility for ensuring ES&H are established and maintained at all organizational levels.
- Personnel have "stop work" authority.
- Personnel possess the experience, knowledge, skills and abilities that are necessary to discharge their responsibilities.
- Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting employees, the public, and the environment is a priority whenever activities are planned and performed.
- Before work is performed, the associated hazards are evaluated and an agreed-upon set of ES&H standards and requirements is established which, if properly implemented, provides adequate assurance that employees, the public and the environment are protected from adverse consequences.
- Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents, unplanned releases, and exposures.

6.2 WRPS REQUIRED ENVIRONMENTAL, SAFETY, AND HEALTH ELEMENTS

WRPS has provided a Field Work Supervisor who is trained to the comprehensive list of WRPS, DOE and Hanford Site-specific procedures and requirements applicable to conducting work

within the confines of the SX Tank Farm. While executing the work scope detailed in this DOW, Energy*Solutions* will comply with all applicable directives and orders resulting from WRPS requirements. The application of these requirements will be directed by the WRPS Field Work Supervisor.

7.0 QUALITY ASSURANCE

All work on the Hanford Site is subject to the requirements of DOE Order 5700.6C, *Quality Assurance*. A Quality Assurance program has been described in applicable sections of FS-WO-QAPP-001, *Federal Services Hanford Quality Assurance Program Plan*, and FSWO-QAP-001, *Quality Assurance Procedures*.

All work will be performed in accordance with approved procedures and this work plan.

8.0 REFERENCES

AHA-09-001, 2009, *SX Barrier Direct Push Deployment Hydraulic Hammer Unit Operations,* Rev. 0, Energy*Solutions* Technical Services, Richland, Washington.

DOE Order 5700.6C, 1991, *Quality Assurance*, U.S. Department of Energy, Washington, D.C.

DOE/ORP-2005-01, 2006, *Initial Single-Shell Tank System Performance Assessment for the Hanford Site*, Rev. 0, U.S. Department of Energy Office of River Protection, Richland, Washington.

Ecology, EPA, and DOE, *Hanford Federal Facility Agreement and Consent Order*, 6 vols., Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington, as amended.

FS-WO-QAPP-001, *Federal Services Hanford Quality Assurance Program Plan*, Energy*Solutions* Federal Services, Western Operations, Richland, Washington.

FSWO-QAP-001, *Quality Assurance Procedures*, Energy*Solutions* Federal Services, Western Operations, Richland, Washington.

Occupational Safety and Health Act of 1970, 29 USC 651 et seq.

Resource Conservation and Recovery Act of 1976, 42 USC 6901 et seq.

WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," *Washington Administrative Code*, as amended.

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APPENDIX B

GLOBAL POSITIONING SYSTEM COORDINATES AND MAP

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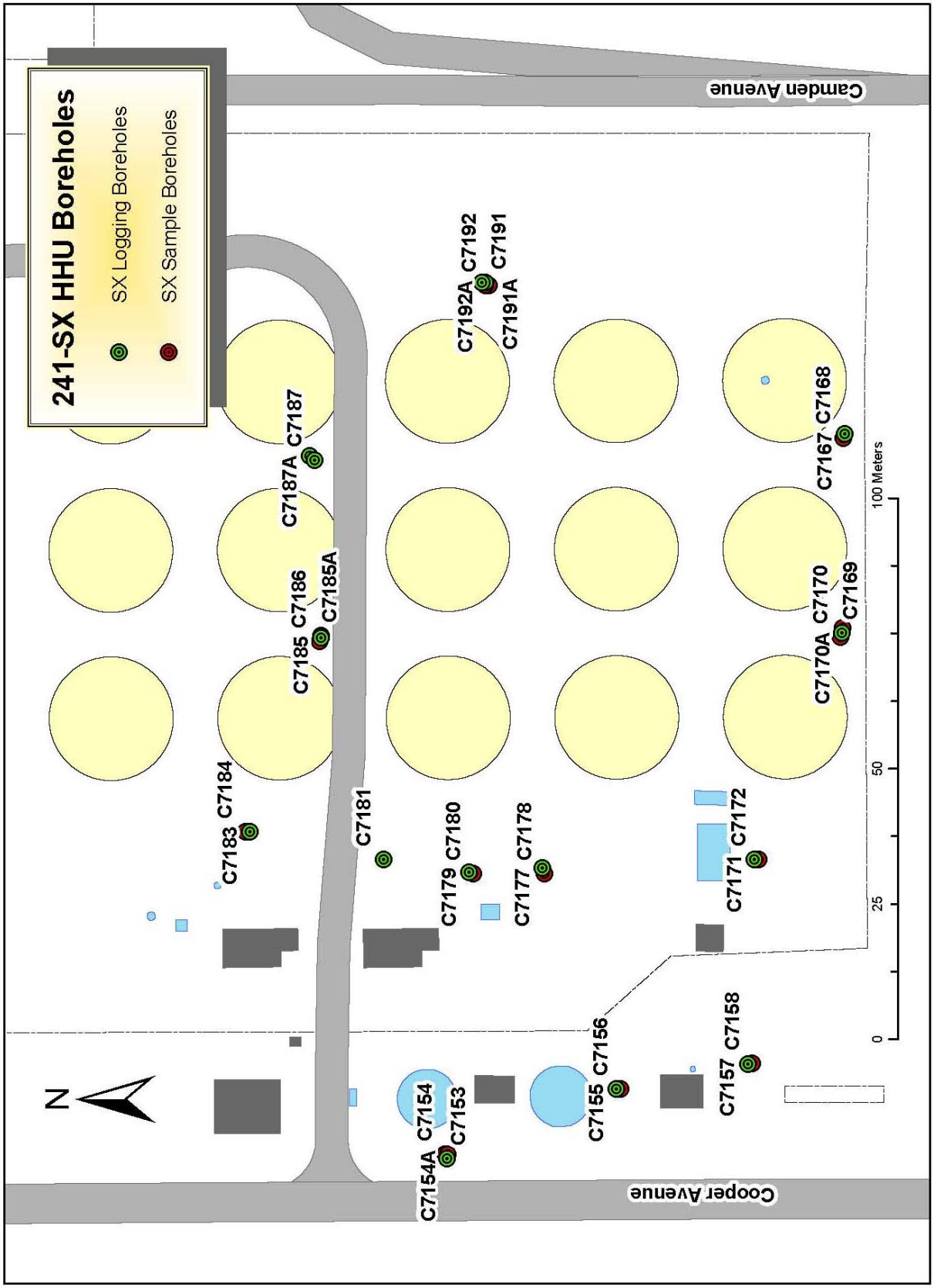
241-SX HHU Boreholes
SX Logging Boreholes
SX Sample Boreholes
Camden Avenue
Cooper Avenue
N
0
25
50
100 Meters
C7192A
C7192
C7191
C7191A
C7187
C7187A
C7186
C7185A
C7185
C7168
C7167
C7170
C7169
C7170A
C7184
C7183
C7181
C7180
C7179
C7178
C7177
C7172
C7171
C7158
C7157
C7156
C7155
C7154
C7153
C7154A

SX Logging Boreholes

Name	Northing	Easting	Elevation
C7187A	134260.93	566821.99	202.995
C7187	134259.93	566821.26	203.017
C7167	134162.23	566826.1	203.103
C7169	134162.7	566789.34	202.707
C7171	134178.87	566747.48	202.663
C7177	134217.95	566745.88	202.564
C7179	134231.53	566745.13	202.743
C7181	134247.3	566747.55	202.528
C7183	134271.96	566752.62	202.592
C7157	134180.13	566709.74	202.528
C7155	134204.32	566705.13	202.669
C7153	134235.58	566692.25	202.671
C7191	134228.51	566854.02	203.038
C7191A	134229.12	566854.02	203.038
C7185A	134258.75	566788.79	202.685
C7185	134258.79	566788.42	202.707

SX Sample Boreholes

Name	Northing	Easting	Elevation
C7180	134230.74	566744.93	202.739
C7178	134217.64	566744.86	202.459
C7172	134178.06	566747.48	202.707
C7170	134163	566788.64	202.579
C7170A	134162.55	566790.28	202.6
C7168	134162.47	566825.42	203.024
C7192	134227.87	566853.59	203.103
C7192A	134228.48	566853.59	203.103
C7158	134179.3	566709.8	202.503
C7156	134203.52	566705.06	202.545
C7154	134235.96	566693	202.496
C7154A	134235.35	566693	202.496
C7184	134272.75	566752.57	202.53
C7186	134259.13	566787.83	202.635

APPENDIX C

DRILLING AND SAMPLING DAILY WORK RECORDS

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ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: #C-7171 | WELL NUMBER: C7171 | REPORT NUMBER: 1 | DATE: Tuesday 04-14-09

CONTRACT NUMBER: 36472-02

START CARD NO: S-27649 A-118512

EXCAVATION PERMIT: (U-Dig Number

RIG MODEL/NO: Hydraulic Hammer Unit

HHU # CAT HHU#2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, Probe installation C#7171

REFERENCE: FSW-DOW-27 RWP- CO-511

LOCATION: SX Tank Farm SW SE SEC 12 Township 12 N R 25 E Cooper + 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 56'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.875	2.3	S.W.S

BORING DEPTH (include sampling depth): #C-7171 - 56'

START TIME: 0600
END TIME: 1530
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: .5 hr Rec's

WEATHER CONDITIONS (373-2716)
Temperature: 60° scattered showers

CASING SUMMARY

Drive tip depth (shift start)	0'
Drive tip depth (shift end)	56'
Casing stick up (shift end)	2.3'
Drive String Length	58.3'

SAMPLE SUMMARY

N/A

OPERATOR: Olson
License # 1217
Repko, Withus, Young, Sharp, Reuben, Siedell Clark, Skoglie

TIME		WORK SUMMARY
0600	0700	Paperwork, Time cards and safety meeting (subject - starting unattended vehicles)
07:00	07:30	Travel to 200 East
07:30	08:00	Acc in, travel from 200 East to SX Farm
08:00	10:40	Pre-job for SX Farm (including S.G.E activities)
10:40	12:15	Dress into S.W.P.I, finish site set up, inspect rig,
—	—	set up air samplers, drive hole C-7171 to 10' b.g.s.,
—	—	survey out.
12:15	12:45	Lunch
12:45	13:15	Stand-by for R.C.T.
13:15	14:30	Dress + enter SX Farm, drive hole C-7171 from 10' to 56' bgs
14:30	15:30	survey out, complete paperwork, clean-up +
—	—	travel to office.
		NOTE: (Reversed two hoses prior to drilling for hammer operation)

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: Kelly Olson / Kelly Olson
Date - 4/14/09

REVIEWED BY: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 7/16/09
SIGNATURE: David Shoglie for

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7171	WELL NUMBER: N/A	REPORT NUMBER: 2	DATE: Wednesday 04-15-09
CONTRACT NUMBER: 36472-02	START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN 3650	RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 AHA: AHA-09-001 Rev. 1	
PURPOSE: Loggins, probe installation	REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0	LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 101'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.875	2.3	S.W.S.

BORING DEPTH (include sampling depth): C7171 - 157.6'

START TIME: 0600
END TIME: 15:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9hr

DOCUMENTED DOWNTIME: NA

WEATHER CONDITIONS (373-2716)
Temperature: 65° sunny

CASING SUMMARY	
Drive tip depth (shift start)	56'
Drive tip depth (shift end)	157.6'
Casing stick up (shift end)	.7
Drive String Length	158.3'
SAMPLE SUMMARY	

OPERATOR: Olson
License # 1217
Repko, Withus, Sharp, Clark, Siedell, Skoglie

TIME		WORK SUMMARY
06:00	07:05	Paperwork, time cards, safety meeting at office, safety meeting
—	—	(safety subject = loading equiptment)
7:05	7:35	travel to SX farm
7:35	8:45	fuel generators, gather equiptment + Pre-job at SX Farm
8:45	10:35	Dress into SWPs, Drive hole #C7171 from 56' to 80' b.g.s.
10:35	11:00	Let head cool, rig inspection
11:00	12:15	Drove #C7171 from 80' to 112' b.g.s., survey out.
12:15	12:45	Lunch
12:45	14:00	Dress into S.W.P.S, drive hole C-7171 from 112' to 157.6' (refusal)
—	—	survey out.
14:00	15:30	Travel to office, pick up charge codes, take
		FEHIC training at office.
		NA

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 4-15-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/17/09
PRINT: David E. Shogue
SIGNATURE: David E. Shogue

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7177	**WELL NUMBER:** N/A	**REPORT NUMBER:** 3	**DATE:** Thursday 04-16-09
CONTRACT NUMBER: 36472-02	**START CARD NO:** S27649/A118512 **EXCAVATION PERMIT:** DAN -3650	**RIG MODEL/NO:** Hydraulic Hammer Unit CAT HHU #2 AHA: AHA-09-001 Rev. 1	
PURPOSE: Logging, Probe installation	**REFERENCE:** FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0	**LOCATION:** SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)	

REFERENCE MEASURING POINT: Ground Level **TOTAL SHIFT FOOTAGE:** 104'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.875	2.3	S.W.S

BORING DEPTH *(include sampling depth)* C-7177 - 104' b.ss

START TIME: 0600
END TIME: 1530
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: NA

WEATHER CONDITIONS (373-2716)
Temperature: 70° sunny, partly cloudy

CASING SUMMARY

Drive tip depth (shift start)	0'
Drive tip depth (shift end)	104'
Casing stick up (shift end)	2.3'
Drive String Length	106.3'

SAMPLE SUMMARY

OPERATOR: Olson
License # 1217
Repko, Sharp, Clark, Wittus, Young, Siedell, Reuben

TIME		*WORK SUMMARY*
06:00	06:50	Time cards, paperwork, safety meeting at office (subject = Jack safety)
06:50	08:05	Travel to C.Farm, pick up equipment, gce in at Smerf bldg.
08:05	08:45	Travel to SX farm + Pre job at SX farm
08:45	10:50	Dress in suit, Enter farm, Move and set up on hole C-7177,
—	—	set up zone, move air samplers, inspect rig, drive from 0' to 56' bgs
10:50	-	Let head cool, add hydraulic oil, fuel rig
10:50	12:15	Drive from 56' to 76' b.g.s., survey out
12:15	12:45	Lunch
12:45	14:15	Dress in suit, Drive hole C#7177 from 76' to 104' b.g.s.
14:15	15:30	shut down to let head cool, secure site, paperwork,
—	—	travel to office.
		NA

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 4-16-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/17/09
PRINT: David E Skoglie
SIGNATURE: David E Skoglie

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Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7177 C-7181	WELL NUMBER: NA	REPORT NUMBER: 4	DATE: 4-20-09

CONTRACT NUMBER: 36472-02	START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN -3650	RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation C-7177 C-7181	REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0	LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 113'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.875	2.3	S.W.S.

BORING DEPTH (include sampling depth)
#C-7177 = 157 b.g.s.
#C-7181 = 60' b.g.s

START TIME: 0600
END TIME: 15:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: NA

WEATHER CONDITIONS (373-2716)
Temperature: 85° Sunny

CASING SUMMARY

Drive tip depth (shift start)	104'	0'
Drive tip depth (shift end)	157' C#7177	60' C7181
Casing stick up (shift end)	1.8	2.3'
Drive String Length	158.3	62.3'

SAMPLE SUMMARY

OPERATOR: Olson
License # 1217
Ehrsott, Clark, Sharp
Willus, Young, Siedell

TIME		WORK SUMMARY
0600	0700	Paperwork, time cards and safety meeting (subject = work clothing)
0700	07:30	Travel to 200 East
07:30	08:10	Ace in at "Smerf" bldg., travel to SX Farm
08:10	08:45	Pre-job at SX farm - gather materials
08:45	10:15	Dress into SWPs, inspect rig, drive hole #C-7177 from 104' to 157.'
10:15	12:00	Water-break, un-load items for John Auten, Re-enter zone
—	—	dress into SWPs, set up line backer, move to hole C-7181
—	—	+ set up zone, set up rig, move pipe - survey out.
12:00	12:30	lunch
12:30	14:40	Dress into SWPs, drive hole C-7181 from 0' to 60' b.g.s
—	—	(let head cool 13:45-14:00) survey out.
14:40	15:30	Paperwork, secure site, travel to office
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE:
PRINT: Kelly Okon
SIGNATURE: Kelly Okon

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/23/09
PRINT: David E. Skoglie
SIGNATURE: David E Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7181 WELL NUMBER: REPORT NUMBER: 5 DATE: Tuesday 04-21-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512
EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit
CAT HHU #2
AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, Probe installation C-7181

REFERENCE: FSWO-DOW-027 Rev.0
RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm
SW SE Section 12 25E 12N
(Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 57'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.875	2.3	S.W.S

BORING DEPTH (include sampling depth)
C-7181 - ~~127'~~ 117' BSS.

START TIME: 06:00
END TIME: 3:30
CONTRACTOR TIME:
TOTAL TIME: 9:00 hrs

DOCUMENTED DOWNTIME:

WEATHER CONDITIONS (373-2716)
Temperature: 85° sunny

CASING SUMMARY
Drive tip depth (shift start) 60' DES 4/21/09
Drive tip depth (shift end) ~~127'~~ 117'
Casing stick up (shift end) 1.3'
Drive String Length 67'

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Passey, Clark, Sharp, Sidell, Young, Wittus

TIME		WORK SUMMARY
06:00	06:40	Paperwork, time cards, safety meeting at office (subject= medications)
06:40	07:45	Fuel pick-up, travel to 200 East, Ace in, travel to SX farm
07:45	08:25	Pre-job at SX Farm
08:25	10:15	Dress into SWPs, inspect rig, drive hole C-7181 from 60' to 88'
10:15	10:30	Let head cool
10:30	11:00	Lunch
12:15	12:50	Let head cool 108' DES 4/21/09
12:50	1:49	Stop let head cool ~~127'~~ 117' Drive Head Broke
—	—	Replace Drive Head & Pen.
1:49	3:30	Travel to office, paperwork, secure site
		Replaced: one Drive Head, one Drive Pen and 16 Linch Pens.

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 04-21-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/21/09
PRINT: D.E. Skoglie
SIGNATURE: D.E. Skoglie

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Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7181 C-7179 WELL NUMBER: NA REPORT NUMBER: 6 DATE: Wednesday 04-22-09

CONTRACT NUMBER: 36472-02 START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN -3650 RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0 LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level TOTAL SHIFT FOOTAGE: 111'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.875	2.3	S.W.S

BORING DEPTH (include sampling depth) T.D
C-7181 – 156' b.g.s
C-7179 – 72' b.g.s

START TIME: 0600
END TIME: 15:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: NA

WEATHER CONDITIONS (373-2716)
Temperature: 68° Cloudy Breezy

CASING SUMMARY

	C7181	C7179
Drive tip depth (shift start)	117'	0'
Drive tip depth (shift end)	156	72'
Casing stick up (shift end)	2.3	2.3
Drive String Length	158.3	74.3

SAMPLE SUMMARY

OPERATOR: Olson
License # 1217
Skoglie, Sharp, Withus
Young, Clark.

TIME		WORK SUMMARY
06:00	06:50	Time cards, paperwork, safety meeting at office (subject = cleaning threads)
06:50	07:30	Travel to SX Farm, gather equipment.
07:30	08:15	Pre-job at SX farm
08:15	11:30	Dress into whites, Drive hole C-7181 from 117' to 156' (refusal)
—	—	move and set up rig and zone at C-7179 drive from 0'
—	—	to 43', survey out.
11:30	12:00	Lunch
12:00	13:15	off-load + set up new generators
13:15	14:40	Dress into whites, drive from 43' to 72' b.g.s at hole
—	—	7179, survey out.
14:40	15:30	Travel to office, paperwork, secure site.
—	—	
		Items used – 6 Nylatrol washers, 12 Lynchpins

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE:
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/24/09
PRINT: David E. Skoglie
SIGNATURE: David E Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7179 C-7169 WELL NUMBER: NA REPORT NUMBER: 7 DATE: Thursday 04-23-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 84'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.875	2.3	S.W.

BORING DEPTH (include sampling depth) C-7179 – 156'

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: .25 hr for Key.

WEATHER CONDITIONS (373-2716)
Temperature: 60° Partly Cloudy

CASING SUMMARY
Drive tip depth (shift start) 72'
Drive tip depth (shift end) 156 } C7179
Casing stick up (shift end) 2.3
Drive String Length 158.3

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Steifler, Siedell, Sharp, Clark, Wittus, Young, Passey, Walkup Randall

TIME		WORK SUMMARY
06:00	06:50	Time cards, paperwork, safety meeting at office (subject - staying in work area)
06:50	07:25	Travel to 200 East, acc in at 'smerf' blg.
07:25	07:45	Complete acing in, gather equipt., travel to SX farm
07:45	08:15	Pre-job at SX farm
08:15	10:00	Dress into whites, drive hole C-7179 from 72' to 104', survey out
10:00	10:30	Let head cool, load rods onto Rack from Pallet
10:30	11:45	Drive hole C7179 from 104' to 156' (refusal)
11:45	12:00	Survey out - gather equiptment
12:00	12:30	Lunch
12:30	12:45	stand-by for Key to sx farm
12:45	14:30	Move rig & air samplers to hole C-7169 + set up, assist Brant
—	—	Randall with set up. for logging on hole C-7171, move generators
—	—	to South side of SX farm, survey out.
14:30	15:30	Paperwork, travel to office

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 4/23/09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/24/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

Note - P.N.G. Gamma logged hole C-7171 from 156' to 153'

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Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C #7169 WELL NUMBER: NA REPORT NUMBER: 8 DATE: Friday 04-24-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 80'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.8	2.3	S.W.

BORING DEPTH (include sampling depth): C-7169 - 80'

START TIME: ~~0700~~ 07:00
END TIME: 15:30
CONTRACTOR TIME: .5
TOTAL TIME: 8hr

DOCUMENTED DOWNTIME: 1 hr - replace generator + drive head.

WEATHER CONDITIONS (373-2716)
Temperature: 70° sunny

CASING SUMMARY

Drive tip depth (shift start)	0
Drive tip depth (shift end)	80'
Casing stick up (shift end)	2.3'
Drive String Length	82.3

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Passey, walkup, Clark, Siedell, Sharp, Randall

TIME		WORK SUMMARY
07:00	07:50	Time cards, paperwork, safety meeting at office (subject = Teamwork)
07:50	08:30	Travel to SX farm (vehicle check by patrol)
08:30	09:00	Pre-job at SX farm
09:00	10:05	Dress into S.W.P.s, enter farm, Problems with generator, replaced generator
10:05	10:35	Drove Hole C7169 from 0' to 24', Broke drive head
10:35	11:05	Pick up new drive head at C-Farm, repair head
11:05	12:45	Dress into whites, Drive hole C7169 from 24' to 64', survey out
12:45	13:15	Lunch
13:15	14:30	Dress in, drive hole C-7169 from 64' to 80' b.g.s, survey out
14:30	15:30	Travel to office, paperwork
		(Note - P.N.G. Gamma logged hole C-7171 from 153' to 93.5'
		Items used - 1 2½" drive head, 15 lynch pins
		5 nylstrol washers

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 04-24-09
PRINT: Kelly Olson
SIGNATURE: Kelly Ol

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/27/09
PRINT: D.E. Skoglie
SIGNATURE: David E Skoglie

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Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7169 C-7167 WELL NUMBER: NA REPORT NUMBER: 9 DATE: Monday 04-27-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 80'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.8	2.3	S.W.

BORING DEPTH (include sampling depth): C-7169 - 160'

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 15 hr
TOTAL TIME: 5 hr

DOCUMENTED DOWNTIME: 1 hr for wind

WEATHER CONDITIONS (373-2716)
Temperature: 65° cloudy

CASING SUMMARY

Drive tip depth (shift start)	80'
Drive tip depth (shift end)	160
Casing stick up (shift end)	2.3
Drive String Length	162.3

C-7169

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Passey, Sharp, Clark, Siedell, Randall, Withers, Young

TIME		WORK SUMMARY
07:00	07:35	Time cards, paperwork at office, safety meeting (topic = new people)
07:35	08:10	Travel to 200 East, see in, travel to SX farm
08:10	08:35	Pre-job at SX farm
08:35	10:05	Dress into whites, Enter farm, drive hole C7169 from 80' to 128'
10:05	10:35	Let head cool, off loaded rods, John Auten brought new items.
10:35	12:00	Dress in, Drive hole C#7169 from 80' to 160', survey
—	—	out, begin moving.
12:00	12:30	Lunch
12:30	13:05	Got third generator ready, placed generator in position
13:05	14:30	Moved rig, pipe, etc. to C7167, set up zone, set up air sampler
—	—	survey out.
14:30	15:30	shut down for Wind supported P.N.G, loaded Rods into racks.
15:30	16:30	Clean-up, Travel to office, Paperwork
		Note (P.N.G. Gamma logged hole C-7171 from 97' to 33')

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 04-27-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/29/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

Items used - 12 Lynch pins

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7167 WELL NUMBER: NA REPORT NUMBER: 10 DATE: Tuesday 04-28-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512
EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit
CAT HHU #2
AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation

REFERENCE: FSWO-DOW-027 Rev.0
RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm
SW SE Section 12 25E 12N
(Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 124'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.8	2.3	S.W.

BORING DEPTH (include sampling depth): C-7167 - 124'

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: NA

WEATHER CONDITIONS (373-2716)
Temperature: 62° cloudy

CASING SUMMARY
Drive tip depth (shift start) 0'
Drive tip depth (shift end) 124'
Casing stick up (shift end) 2.3
Drive String Length 126.3

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Passey, Wagley, Clark, Shaw, Withus, Young

TIME		WORK SUMMARY
07:00	07:45	Time cards, paperwork at office, safety meeting (topic = Reptiles)
07:45	08:30	Fuel Pick-up, travel to SX farm
08:30	08:50	Pre-job at SX farm
08:50	10:45	Dress into whites, inspect rig, drive hole C-7167 from
—	—	0' to 80' b.g.s., survey out
10:45	11:15	Let head cool, load rods onto racks, break.
11:15	12:30	Drive C-7167 from 80' to 100' b.g.s, survey out
12:30	13:00	Lunch
13:00	14:35	Dress into whites, Drive hole C-7167 from 100' to 124',
14:35	15:35	Let head cool, moved drill rods, worked on Ramps
—	—	for trailer, clean-up, assist P.N.G.
15:35	16:30	Travel to office, paperwork
—	—	Note - P.N.G Logging logged hole C-7171 from 37.8 to 0.5'
—	—	Moisture Logged hole C-7171 from 50' to 25'

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 04-28-09
PRINT: K. Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/30/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

Items used - 10 Lynch pins
2 Nylatrol washers

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7167 WELL NUMBER: NA REPORT NUMBER: 11 DATE: Wednesday 04-29-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CATHHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 28'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.8	2.3	Sw

BORING DEPTH (include sampling depth): C-7167 - 152'

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 5.5 hr for sampling pkn + air sampler water proofing

WEATHER CONDITIONS (373-2716)

Temperature: 52° Rain

CASING SUMMARY

Drive tip depth (shift start) 124'
Drive tip depth (shift end) 152'
Casing stick up (shift end) 2.3'
Drive String Length 154.3'

SAMPLE SUMMARY

OPERATOR: Olson
License # 1217
Weakley, Passey, Clark, Siedell, Sharp, Welkup, Randall

TIME		WORK SUMMARY
07:00	07:40	Time cards, paperwork at office, safety meeting, (topic - Lock + tag.)
07:40	08:15	Travel to SX farm
08:15	08:45	Pre-job at SX farm
08:45	09:40	waterproof air samplers
09:40	11:15	Dress into whites, drive hole C-7167 from 124' to 152' refusal
11:15	12:00	Stand-by for Logging results, Clean up trailer, Support P.N.G
12:00	12:30	Lunch
12:30	15:10	stand-by for logging results + sampling pkn, support P.N.G., clean-up site, cover materials, P.N.G. Broke down, took equipment to town.
15:10	16:30	Travel to office, paperwork, send out report

NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 04-29-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 4/30/09
PRINT: D.E. Skoglie
SIGNATURE: Dale E Skoglie

(note- no logging conducted by P.N.G. due to equipment failure)

ENERGY SOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7171 WELL NUMBER: NA REPORT NUMBER: 12 DATE: Thursday 04-30-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: moisture logging hole C-7171 spectral gama hole C-7177

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
		CS	NA		

BORING DEPTH (include sampling depth)
C-7171 – 157.6
C-7177 –

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:
9 hrs stand-by for logging

WEATHER CONDITIONS (373-2716)
Temperature: 70° sunny

CASING SUMMARY

Drive tip depth (shift start)	N/A
Drive tip depth (shift end)	N/A
Casing stick up (shift end)	N/A
Drive String Length	N/A

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Clack, Sharp, Wittus
Young, Steitler, Sindell
Randall, Price

TIME		WORK SUMMARY
07:00	07:40	Time cards, paperwork at office, Safety meeting (topic = grinding disks)
07:40	08:15	Travel to "Smeef" building, Ace in
08:15	08:25	Travel to SX Farm
08:25	08:55	Pre-job at SX farm
08:55	12:00	Dress into whites, P.N.G. set up and begin moisture logging
—	—	on hole C-7171, Surveyed out HHU Rig #2, removed
—	—	fuel transfer pump and hydraulic hose on hammer outside
—	—	farm
12:00	12:30	Lunch
12:30	15:40	Carpenters on site, repair shelving in horse trailer, re-stock
—	—	materials, check accumulators on H.H.U. #2, all units good,
—	—	P.N.G. Moisture logged from 157 to 50' on C-7171 (complete)
—	—	Spectral Gamma logged from 156 to 144' on C-7177
15:40	16:30	Travel to office, paperwork.

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 4-30-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/04/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7177 C-7181 WELL NUMBER: NA REPORT NUMBER: 13 DATE: Monday 05/04/09

CONTRACT NUMBER: 36472-02 START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN -3650 RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 AHA: AHA-09-001 Rev. 1

PURPOSE: spectral gamma logging hole C-7177 Moisture logging hole C-7181

REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
NA		CS			

BORING DEPTH (include sampling depth): C-7177 -156.5' C-7181 -156.0'

START TIME: 07:00 END TIME: 16:30 CONTRACTOR TIME: .5 hr TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: stand-by for direction after logging 9 hr

WEATHER CONDITIONS (373-2716) Temperature: 69° Partly Cloudy

CASING SUMMARY

Drive tip depth (shift start)	N/A
Drive tip depth (shift end)	N/A
Casing stick up (shift end)	N/A
Drive String Length	N/A

SAMPLE SUMMARY: N/A

OPERATOR: Olson License # 1217 Clark, Siedell, Randall, Withrs, Mitzey

TIME		WORK SUMMARY
07:00	07:40	Time cards, paperwork at office, Safety meeting (topic = eye bolts)
07:40	08:20	Travel to 'Smart' building, ace in, travel to SX farm
08:20	08:45	Pre-job at SX farm
08:45	11:05	Take equipment to C-farm, P.N.G begin logging at SX farm,
—	—	fueled and started generators, Picked up batteries for generators
—	—	at C-farm, off-loaded 2½" casing from John Auten at SX farm
11:05	12:30	Pick up Keys for Pressure washer at 200 east, clean pallet
—	—	of 2½" Rod + return to SX farm
12:30	13:00	Lunch
13:00	15:20	P.N.G. continues logging, Gamma logged from 149' to 91.5' on C-7177
—	—	Moisture logged on hole C-7181 from 155' to 19.25'
—	—	installed fuel pump + hydraulic hose on Rig #2, secure site
15:20	16:30	Travel to office, Paperwork
—	—	(note - all activities conducted while standing by for direction)

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05/04/09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/06/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of

WELL I.D.: NA	**WELL NUMBER:** NA	**REPORT NUMBER:** 14	**DATE:** Tuesday 05/05/09

CONTRACT NUMBER: 36472-02	**START CARD NO:** S27649/A118512 **EXCAVATION PERMIT:** DAN	**RIG MODEL/NO:** Hydraulic Hammer Unit CAT HHU #2 AHA: AHA-09-001 Rev. 1

PURPOSE: Down for wind	**REFERENCE:** FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0	**LOCATION:** SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level **TOTAL SHIFT FOOTAGE:** NA

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
		CS NA			

BORING DEPTH *(include sampling depth)* NA

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: Stand-by for high winds

WEATHER CONDITIONS (373-2716)
Temperature: 68° windy (40mph plus)

CASING SUMMARY

Drive tip depth (shift start)	NA
Drive tip depth (shift end)	NA
Casing stick up (shift end)	NA
Drive String Length	NA

SAMPLE SUMMARY
NA

OPERATOR: Olson
License # 1217
Weakley, Pessey, Clark, Randell, Sharp, Siedell, Withus, Young

TIME		*WORK SUMMARY*
07:00	07:40	Time cards, paperwork at office, safety meeting (topic = cuts)
07:40	08:20	Travel to 200 East, Acc in at 'smart' building
08:20	08:55	Travel to SX farm + Pre-job, Tank farms closed for winds.
08:55	12:15	Tape up moisture probes, pick up Sand, Salt, water,
—	—	Knock out bar at C-farm, prepare for Probe installation.
—	—	Pick up buckets etc. at chemical storage.
12:15	12:45	Lunch.
12:45	14:05	Put away materials, tape additional probes, clean-up
14:05	16:30	Travel to office, paperwork, while stand-by for wind.
		NA

REPORT BY: TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE DATE: 05/05/09 PRINT: Kelly Olson SIGNATURE: Kelly Olson	***REVIEWED BY:*** TITLE: ES TECHNICAL REVIEWER DATE: 5/06/09 PRINT: D. E. Skoglie SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7171 C-7179 C-7177 C-7181	WELL NUMBER: NA	REPORT NUMBER: 15	DATE: Wednesday 05/06/09
CONTRACT NUMBER: 36472-02	START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN -3650	RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 AHA: AHA-09-001 Rev. 1	
PURPOSE: Logging, Probe installation	REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0	LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5	1.75	CS	2.8	2.3	SW

BORING DEPTH (include sampling depth)
C-7177 - 156.5'
C-7181 - 156'
C-7171 - 157.5'
C-7179 - 156'

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:
1.25 hr - all hands meeting
3 hr weather + SGE resting

WEATHER CONDITIONS (373-2716)
Temperature: 68° Cloudy showers

CASING SUMMARY

Drive tip depth (shift start)	NA
Drive tip depth (shift end)	NA
Casing stick up (shift end)	NA
Drive String Length	NA

SAMPLE SUMMARY
N/A

OPERATOR: Olsen
License # 1217
Passey, Sharpe, Siedell, Young, Clark, Withus

TIME		WORK SUMMARY
07:00	08:15	Energy Solutions all-hands meeting
08:15	08:40	Time cards, paperwork, safety meeting at office (topic = Protective eyewear)
08:40	09:10	Travel to SX farm
09:10	09:30	Pre-job at SX farm
09:30	10:20	Gather materials for Probe installation, stage Rig + materials at
—	—	south gate. P.N.6 begin logging operations.
10:20	11:45	Stand-by for weather (rain-wind) + S.G.E activitie, work on installing
—	—	batteries in Generator.
11:45	12:15	Lunch
12:15	15:25	OFF load new generator, Move Rig #2 in and set up on hole
—	—	C-7171 from outside farm, set up zone, air samplers etc, no
—	—	back-pulling due to wind + rain. Survey out. Moisture on C-7179 - 154' to 21'
—	—	P.N.6 Moisture logged C-7181 from 25' to 25, Gamma on C-7177, 96' to 55'
15:25	16:30	Travel to office and paperwork.

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05/06/09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/08/09
PRINT: D. E. Shoghe
SIGNATURE: Dale Shoghe

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7171 C-7179 C-7177 WELL NUMBER: NA REPORT NUMBER: 16 DATE: Thursday 05/07/09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 37' pulled.

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.8"	2.3'	S.W.

BORING DEPTH (include sampling depth) C-7171 - 157.5'

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 3.5 hr for wind.

WEATHER CONDITIONS (373-2716)
Temperature: 70° Windy, Partly Cloudy

CASING SUMMARY

Drive tip depth (shift start)	157.5'
Drive tip depth (shift end)	120.'
Casing stick up (shift end)	2.3'
Drive String Length	122.3'

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Passey, Clark, Sharp, Wittus, Young.

TIME		WORK SUMMARY
07:00	07:20	Paperwork, time cards, safety meeting at office (subject = Hauntavirus)
07:20	08:05	Travel to 'smerf' building, ace in (RWP Reved. to include Alpha) Travel to SX
08:05	08:50	Pre-job at SX farm
08:50	11:30	Fuel generators, Dress into whites, Enter SX Farm, set up cords and air
—	—	samplers, back-pull hole C-7171 from 157.5' to 153', Knock out tip,
—	—	back pull to 139', set moisture probe at 144', send 146' to 139', back-pull
—	—	to 120', survey out. P.N.G. conducted Logging operations
11:30	12:00	Lunch
12:00	15:25	No back-pulling due to wind, worked on wheel Kits on generators,
—	—	install cap on Logging calibration hole at 'T' Farm, P.N.G. continues logging.
—	—	clean-up P.N.G Gamma logged hole C-7177 from 58' to 0.5
—	—	P.N.G. Moisture logged hole C-7179 from 25' to 0.25
15:25	16:30	Travel to office, paperwork

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05/07/09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/08/09
PRINT: D. E. Skoglie
SIGNATURE: Darl E Skoglie

Items used - 1 - 150' moisture probe
1 - 2½" expendable tip

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7171 WELL NUMBER: NA REPORT NUMBER: 17 DATE: Friday 05-08-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3656

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, Probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 88' Pulled

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.8"	2.3'	S.W.

BORING DEPTH (include sampling depth): C-7171 - decommissioned from 120' to 32'.

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 15
TOTAL TIME: 8hr

DOCUMENTED DOWNTIME: 40 minutes for instruments (RCT)

WEATHER CONDITIONS (373-2716)

Temperature: 72° Sunny

CASING SUMMARY

Drive tip depth (shift start)	120'
Drive tip depth (shift end)	32
Casing stick up (shift end)	~~34.5~~ 2.3
Drive String Length	34.3'

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Clark, Wittus, Young, Sharp, Sickell, Randall, Rob Zane.

TIME		WORK SUMMARY
07:00	07:25	Paperwork, Safety meeting at office, (subject = improper cable for hoist)
07:25	08:00	Travel to SX farm
08:00	08:30	Pre-job at SX farm
08:30	09:35	Dress into whites P.N.G. begin logging, back-pulled hole C-7171
—	—	from 120' to ~~[illegible]~~ DEA 92', 800 CPM contamination found on 24th rod.
9:35	10:30	RCTS Pick up Alpha instruments, additional G.M. and sleeving
10:30	12:00	Back pull to 60', install 2nd Probe at 70', Lost #16 + #19 rod
—	—	to contamination, survey out.
12:00	12:30	Lunch
12:30	13:10	Stand-by for RCT to replace back GM, P.N.G. continue logging
13:10	14:35	Back Pull C-7171 from 60' to 32', Lost #15 and #10
—	—	rod to contamination. P.N.G. Spectral gamma logged C-7181
—	—	from 156' to 95', moisture logged C-7177 from 155' to 10', survey out.
14:35	15:30	Travel to office, Time cards, Paperwork

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05-08-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/08/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

Items used - 1-100' moisture Probe
5 sacks bentonite
2 sacks sand
5 2½" X 4' Rods

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7171 WELL NUMBER: NA REPORT NUMBER: 18 DATE: Monday 05-11-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, Probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.8"	2.3'	S.W.

BORING DEPTH (include sampling depth): NA

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 9hr

DOCUMENTED DOWNTIME: 9 hr for wind

WEATHER CONDITIONS (373-2716)
Temperature: 72° windy, Partly cloudy

CASING SUMMARY

Drive tip depth (shift start)	32'
Drive tip depth (shift end)	—
Casing stick up (shift end)	2.3
Drive String Length	34.3

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Pessey, Clark, Sharp, Zane, Siedell, Withus Young

TIME		WORK SUMMARY
07:00	07:40	Paperwork, safety meeting at office, (subject = improper controls on Electric work)
07:40	08:25	Fuel Pickup, travel to Smerf bldg., Acc in, travel to SX farm
08:25	09:15	Pre-job at SX farm.
09:15	11:30	No H.H.U. work due to Wind, P.N.G. begin logging, prepared
—	—	and loaded Rod and equipment for sampling, moved rod into farm,
11:30	12:00	Lunch
12:00	15:25	P.N.G. continue logging, work on mounting generators to
—	—	wagons while stand-by for wind
—	—	P.G.N Moisture logged C-7177 from 15' to 0'
—	—	P.G.N Spectral Gamma logged C-7181 from 98' to 30'
15:25	16:30	Travel to office, time cards, and paperwork
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05-11-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/13/09
PRINT: D.E. Shoglie
SIGNATURE: David E. Shoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7171 WELL NUMBER: NA REPORT NUMBER: 19 DATE: Tuesday 05-12-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -365a

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, Probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.8"	2.3'	S.W

BORING DEPTH (include sampling depth): NA

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:
9 hr for wind - H.H.U
2.5 hr for lightning - P.N.G

WEATHER CONDITIONS (373-2716)
Temperature: 63° windy, cloudy
Thunderstorms in P.M.

CASING SUMMARY

Drive tip depth (shift start)	32'
Drive tip depth (shift end)	\
Casing stick up (shift end)	2.3
Drive String Length	34.3

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Passey, Clark, Withus, Young, Sharp, Sidell, Randall

TIME		WORK SUMMARY
07:00	07:45	Paperwork, safety meeting at office, (subject = Sleep deprivation)
07:45	08:20	Travel to SX farm
08:20	08:50	Pre-job at SX farm
08:50	12:00	Fuel generators, P.N.G. enters SX farm and begin logging C-7181,
—	—	no H.H.U. work due to high winds, work on mounting tool boxes
—	—	in Dodge pick-up, survey out.
12:00	12:30	Lunch
12:30	13:00	P.N.G continues logging - Spectral gamma C-7181 - 40' to 20'
13:00	15:05	Shut down for lightning, no more logging completed,
—	—	move generator to Energy N.W., work on hour meter installation
—	—	on generators
		Travel to office and paperwork, time cards.
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05-12-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 05/13/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7171 C-7172 WELL NUMBER: NA REPORT NUMBER: 20 DATE: Wednesday 05-13-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, Probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: Pulled 32'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.8"	2.3'	S.W.

BORING DEPTH (include sampling depth): C-7171- 157.5

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 5 hr for Safety Expo

WEATHER CONDITIONS (373-2716)
Temperature: 65° Partly sunny

CASING SUMMARY

Drive tip depth (shift start)	32'
Drive tip depth (shift end)	0'
Casing stick up (shift end)	0'
Drive String Length	0'

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Passey, Clark, Sharp, Young, Withus, Randall, Siedell

TIME		WORK SUMMARY
07:00	07:40	Paperwork, safety meeting at office, (topics securing loads)
07:40	08:15	Travel to SX farm
08:15	08:30	Pre-job at SX Farm
08:30	10:40	Dress into whites, enter SX farm, P.N.G. entered,
\	\	Back-pulled hole C-7171 from 32' to 0' Lost #4, #3, #2, #1
\	\	joints to contamination, Moved and set up on C-7172
\	\	Moved in Pipe and set up for sampling.
\	\	P.N.G spectral gamma logged hole C-7181 from 20.5 to 6.5'
\	\	survey out. (shut down for Safety Expo at TRAC)
10:40	12:00	Paperwork, travel to office, ~~paper~~ K.O. time cards, Reports.
12:00	12:30	Lunch
12:30	16:30	Attend safety expo at TRAC
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05-13-09
PRINT: Kelly Olson
SIGNATURE: Kelly Ol

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/14/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7172 WELL NUMBER: NA REPORT NUMBER: 21 DATE: Thursday 05-14-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3658

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Loggins, sampling (no H.H.U. work due to wind)

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: NA

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH (include sampling depth): NA

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 9hr for wind

WEATHER CONDITIONS (373-2716)
Temperature: 70° windy, cloudy

CASING SUMMARY
Drive tip depth (shift start) NA
Drive tip depth (shift end) NA
Casing stick up (shift end) NA
Drive String Length NA

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Passey, Clark, Willis, Mincey, Siedell, Sharp, Randall

TIME		WORK SUMMARY
07:00	07:20	Paperwork, safety meeting at office (topic = fire extinguishers)
07:20	07:55	Travel to SX Farm
07:55	08:15	Pre-job at SX-farm, No H.H.U. work due to high winds (A0098)
08:15	11:30	Fuel and start generator, P.N.G. enters farm and begins spectral-gamma logging on C-7181, complete spectral gamma on C-7181, begin Spectral gamma logging on C-7179, work on setting up 'Igloo' shelter for samplers and hour meters for generators.
11:30	12:00	Lunch
12:00	15:15	P.N.G. continues logging, continue work on hour meters, pick-up equipment at 'Green Hut', inventory Probes, move probes to SX farm
—	—	P.N.G completed spectral C-7181 10.5' to 0, spectral on C-7179 155-100'
15:15	16:30	Survey out, shut down generators, travel to office paperwork and time cards.
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 05-14-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 05/15/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7172 WELL NUMBER: NA REPORT NUMBER: 22 DATE: Monday 5-18-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -365a

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, soil sampling

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 46'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH (include sampling depth): 46' - sample interval

START TIME: 06:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 10 hr

DOCUMENTED DOWNTIME: 3.25 hr stand-by for samplers.

WEATHER CONDITIONS (373-2716)
Temperature: 92° sunny

CASING SUMMARY

Drive tip depth (shift start)	0'
Drive tip depth (shift end)	46'
Casing stick up (shift end)	2.3
Drive String Length	48.3

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Passey, Sharp, Clark, Siedell, Withus, Young, Randell

TIME		WORK SUMMARY
06:00	06:40	Paperwork, safety meeting at office, (topic = Heat stress, drink liquids)
06:40	07:35	Fuel pick-up, travel to 200 East, Ace in, travel to SX farm
07:35	08:40	Pre-job at SX farm
08:40	10:30	Fuel generators, dress into whites, Enter SX farm, P.N.6 begin
—	—	logging, drove hole C-7172 from 0' to 28' survey out.
10:30	10:50	John Auten on site, un-load 2½" drive pipe - Cool down
10:50	12:15	Enter farm, drive to sample depth at 7172 (46'), survey out.
12:15	12:45	Lunch
12:45	15:15	Continue logging, (stand-by for Samplers - H.H.U.) Pick up
—	—	enclosures for air samplers and shade cover at Green Hut.
—	—	P.N.6 spectral gamma logged C-7179 from 105' to 42'
15:15	14:30	Travel to office, paperwork + time cards
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 5-18-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/19/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7172 WELL NUMBER: NA REPORT NUMBER: 23 DATE: Tuesday 5-19-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN-3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: sampling

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.875"	2.3'	Duss

BORING DEPTH (include sampling depth): 46'

START TIME: 06:00
END TIME: 16:30
CONTRACTOR TIME: 15 hr
TOTAL TIME: 10 hr

DOCUMENTED DOWNTIME:
3.5 hr for samplers
5.5 hr for wind.

WEATHER CONDITIONS (373-2716)
Temperature: 70° Breezy, cloudy

CASING SUMMARY

Drive tip depth (shift start)	46'
Drive tip depth (shift end)	—
Casing stick up (shift end)	—
Drive String Length	—

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License #1217
Passay, Sharp, Clark, Siedell, Withrs, Young,

TIME		WORK SUMMARY
06:00	06:30	Paperwork, safety meeting at office (topic = out of date tires)
06:30	08:50	Travel to whole body count, whole body count - Return to office travel to
—	—	SX - farm.
8:50	9:15	Pre-job at SX farm
9:15	10:30	Stand-by for samplers, No H.H.U. work, No logging, Brent in training
10:30	12:00	Stand-by for high winds, haul water to pressure washer for
—	—	cleaning equipment, charge battery on Pressure washer
12:00	12:30	Lunch
12:30	16:30	Continue stand-by for wind, Change oil on pick-up,
—	—	clean-up, paperwork while standing by.

NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 5-19-09
PRINT: Kelly Olson
SIGNATURE: Kelly Ol

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/19/09
PRINT: D.F. Skoglie
SIGNATURE: David F. Skoglie

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drive tubing (C7172), Logging and Move HHUXL in Farm **DATE:** 5/20/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 24

START CARD NO. S27649 **DECOMMISSION NO.** A118512 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B20640 + Y1	46-48	100
2. B20642 + Y3	75.5-77.5	100
3.		
4. N/A		

SITE/EQUIPMENT INSPECTION: (Yes) No **HHU CASE#1** (HHU CAT #2 HHUXL#3)

BOREHOLE SUMMARY

Borehole # C7172 Tubing (2 5/8) @ 46 to 77.5 ft bgs: S.U. 1.8

Borehole # _____ Tubing ( ) @ N/A to ft bgs; S.U. ____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C7179	47-0	SG
2. N/A		
3.		

TIME	WORK SUMMARY
0600	Paperwork, safety meeting at office (topic proper tool use).
0630	Travel to SX tank Farm.
0705	Pre-job at SX.
0745	Dress into SWP's, PNG enters farm. C7172 pulled inner rod, installed
–	sampler, drove sample @ 9:05 from 46 to 48 ft bgs. Pulled sample
–	100% recovery, installed tip
10:00	Drive C7172 from 48 to 60 ft bgs. Break let head cool. Exit
10:50	Dress - drive from 60 to 75.5 ft bgs. Exit.
12:10	Lunch
12:40	Dress and enter SX tank farm.
13:00	Trip out inner tubing and drive point. Trip sampler to depth.
14:20	Drive sampler from 75.5 to 77.5 ft bgs trip to surface.
15:10	Process sample 100% recovery.
–	PNG completed Spectral Gamma logging on C7179 (47 to 0)
–	Travel to office, paperwork, time card. 16:30
	NOTE: The HHUXL unit #3 was moved into SX tank farm and set up on C7187. No Air samplers available.
	N/A

OPERATOR/LICENSE: OLSON #1217
ES SUPPORT: PASSEY
NCO: Sharpe, Siedell
HPT: Witus, Young
FWS: B. Clark PNG B. Randall

WEATHER: 80 F Sunny

DOWNTIME: N/A

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: K. OLSON
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: D. Skoglie for

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 5/22/09

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7172 WELL NUMBER: NA REPORT NUMBER: 25 DATE: Thursday 5-21-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -365a

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Loggins, soil sampling

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 20'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH (include sampling depth): 97.5' sample depth

START TIME: 06:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 10hr

DOCUMENTED DOWNTIME:
1.5 hr for SGE Testing
3 hr for training

WEATHER CONDITIONS (373-2716)
Temperature: 82° sunny

CASING SUMMARY

Drive tip depth (shift start)	77.5
Drive tip depth (shift end)	97.5
Casing stick up (shift end)	.8'
Drive String Length	98.3'

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License #1217
Passey, Withus, Clark, Sharp, Siedell, Young, Rankell

TIME		WORK SUMMARY
06:00	06:45	Paperwork, safety meeting at office (subject = handling plates)
06:45	07:30	Fuel pick-up, travel to SX farm
07:30	0800	Pre-job at SX farm
08:00	09:30	stand-by for S.G.E Testing, fuel and move generators for logging support
—	—	P.N.G. begin logging
~~12:30~~	—	Mike Passey ~~left~~ OFF off-site for training, no H.H.U. work (stand-by for helper).
12:30	13:00	Lunch
13:00	15:15	Dressed into whites, installed drive tip, drove dual wall
—	—	casing from 77.5' to 97.5' at C-7172 (sample depth)
—	—	P.N.G. gamma logged C-7169 from 158.5 to 100'
—	—	P.N.G moisture logged C-7167 from 151.5 to 0'
15:15	16:30	Survey out, Lockup source, clean-up, travel to
		office, paperwork and time cards.
		N/A

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 5-21-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/22/09
PRINT: D.E. Shogle
SIGNATURE: D.E. Shogle

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drive 2½ inch tubing @ C7187 / house Keeping **DATE:** 5/22/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 25 B

START CARD NO. S27649 **DECOMMISSION NO.** A118512 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	N/A	
3.		
4.		

SITE/EQUIPMENT INSPECTION: *Yes* *No* *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

BOREHOLE SUMMARY

Borehole # C7187A Tubing (2½) @ 0 to 24 ft bgs; S.U. N/A

Borehole # _____ Tubing ( ) @ N/A to ft bgs; S.U. _____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. _____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C7169	105-83	SG
2.		
3.		

TIME	WORK SUMMARY
0600	Paper work, safety meeting at office (subject tripping hazards).
0630	Travel to 200W SX tank farm.
0715	Safety meeting at SX tank farm.
0735	Dress into SWPs, conduct site and equipment inspection - no deficiencies.
–	Note 1: HHU CAT #2 No activities completed at sample boring C7172,
–	due to lack of sampling support (house Keeping / BBQ scheduling for
–	WRPS).
0830	Move air samplers to C7187.
–	Drive C7187 from 0 to 24 ft bgs (refusal). A decision was made by
–	WRPS to decommission this boring and move 4 ft. South to conduct
–	C7187. Initial boring will be designated C7187A.
12:00	lunch
	Conduct house Keeping the remainder of the day (WRPS house-Keeping day)
1530	Secure Site.
	Note 2: PNG completed spectral gamma logging from 105 to 83 ft. bgs.
	N/A

OPERATOR/LICENSE: OLSON # 1217
ES SUPPORT: PASSEY
NCO: Sharpe, Siedell
HPT: Witis, Yang
FWS: B. CLARK

WEATHER: 80 F Sunny

DOWNTIME: 3 hr - house Keeping

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: K. OLSON
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: David E Skoglie Jr

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E Skoglie **DATE:** 5/22/09

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7172 WELL NUMBER: NA REPORT NUMBER: 26 DATE: Tuesday 5-26-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging, soil sampling

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 30.5

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.875"	2.3	DWSS

BORING DEPTH (include sampling depth): 128

START TIME: 06:00
END TIME: 16:30
CONTRACTOR TIME: 15 hr
TOTAL TIME: 10 hr

DOCUMENTED DOWNTIME: .5 hr stand-by for RCT

WEATHER CONDITIONS (373-2716)
Temperature: 85° mostly sunny

CASING SUMMARY
Drive tip depth (shift start) 97.5'
Drive tip depth (shift end) 128
Casing stick up (shift end) .3'
Drive String Length 128.3'

SAMPLE SUMMARY B206Y4 + Y5 B20H51 + H52
~~B206Y6~~ 97.5-99.5 100% Rec / ~~B206Y8~~ 126-128 100% Rec
Driven at 9:25 Driven at 14:25

OPERATOR: Olson
License # 1217
Passey, Sharp, Walker, Weakly, Willus, Young.

TIME		WORK SUMMARY
06:00	06:30	Paperworkwork, safety meeting at office (topic = Daily commute)
06:30	07:25	Travel to 200 East, Ace in, travel to SX farm
07:25	08:15	safety meeting - Pre-job at SX farm
08:15	12:00	Dress into whites, P.N.G begin logging, Pull drive tip, install sampler,
—	—	drive sample #B206Y6 from 97.5 to 99.5' 100% Recovery, Pull and Process sample,
—	—	install tip, drive dual wall to 126' next sample depth - survey out.
12:00	12:30	Lunch
12:30	13:00	stand-by for RCT
12:00	15:30	Dress in, Pull drive tip, install sampler, Drive
—	—	sample ~~#B20H51~~ B206Y8 DEL from 126' to 128' at 14:25, 100% Recovery, processed
—	—	sample, begin installing inner Rod. P.N.G Gamma logged C-7169 from 82' to 16'
15:30	16:30	Clean-up, travel to office, paperwork, time cards
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 5-26-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/28/09
PRINT: D. E. Skoglie
SIGNATURE: David E Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7172 WELL NUMBER: NA REPORT NUMBER: 27 DATE: wednesday 5-27-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Loggins, soil sampling, decommissioning

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 3' driven / 60' Pulled

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH (include sampling depth): C-7172 131' B.G.S.

START TIME: 06:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 10 hr

DOCUMENTED DOWNTIME: 4hrs - all hands meeting

WEATHER CONDITIONS (373-2716)
Temperature: 87° sunny

CASING SUMMARY
Drive tip depth (shift start) 128'
Drive tip depth (shift end) 131'
Casing stick up (shift end) N/A
Drive String Length N/A

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Repko, walkup, Siedell, Sharp, Young, Weakly

TIME		WORK SUMMARY
06:00	06:45	Paperwork, safety meeting at office, (subject = Road Rage)
06:45	07:40	Travel to 200 East, Ace in, travel to SX farm
07:40	08:00	Pre-job at SX farm
08:00	12:15	Enter farm, fuel generators and install inner rods, drove dual
—	—	wall from 128' to 131', Broke 2 5/8" Rod, #18 Joint (52' B.G.S. =
—	—	18 joints, 1 bottom assembly), Decommissioned hole C-7172, survey out.
—	—	P.N.D. spectral gamma logged C-7169 From 21' to 0'
12:15	12:45	Lunch
12:15	16:30	Stand-by in P.M. for WRPS all hands meeting,
—	—	Attended time card class in P.M.
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 5-27-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 5/28/09
PRINT: D.E. Skoglie
SIGNATURE: D.E. Skoglie

items lost = 18 2 5/8" x 4' Rods
1 2 5/8" x 2' Box by Box -
1 2 5/8" tip holder
6 sacks bentonite

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7178 WELL NUMBER: NA REPORT NUMBER: 28 DATE: Thursday 5-28-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: sampling, logging

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 89'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.815"	2.3'	Dwss

BORING DEPTH (include sampling depth): 89'

START TIME: 06:00
END TIME: 16:30
CONTRACTOR TIME: .5 hr
TOTAL TIME: 10 hr

DOCUMENTED DOWNTIME: N/A

WEATHER CONDITIONS (373-2716)
Temperature: 91° sunny

CASING SUMMARY
Drive tip depth (shift start) 0
Drive tip depth (shift end) 89'
Casing stick up (shift end) 1.3'
Drive String Length 90.3'

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Amos, Passey, Sharp, Siedell, Weakley, Passey, Wittus, Young

TIME		WORK SUMMARY
06:00	06:50	Paperwork and safety meeting at office (subject = Rod joints)
06:50	07:35	Fuel pick-up travel to SX farm
07:35	08:15	Pre-job at SX farm
08:15	11:45	Dress into whites, move and set up on C-7178, set up zone
—	—	air samplers etc., P.N.G begin logging, drove dual wall from
—	—	0' to 49', survey out, Olin Amos inspected pipe at site.
11:45	12:15	Lunch
12:15	15:35	Dress into whites, drove 7178 from 49' to 72', let head cool
—	—	30 minutes, Drove C-7178 to sample depth 89'
—	—	P.N.G. spectral gamma logged C-7167 from 151.5' to 91.5'
—	—	P.N.G moisture logged C-7169 from 158.5' to 0.25'
15:35	16:30	Travel to office, paperwork and time cards
		NA

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 5-28-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 05/28/09
PRINT: D.E. Skoglie
SIGNATURE: Dan E Skoglie

Items used - 1 Allen Set screw
12 Lynch Pins

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7178/C7187A C7187	WELL NUMBER: NA	REPORT NUMBER: 29	DATE: Monday 06-01-09
CONTRACT NUMBER: 36472-02	START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN -3650	RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 / HHUXL AHA: AHA-09-001 Rev. 1	
PURPOSE: Sampling, Logging, decommissioning & drilling	REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0	LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625	1.875	CS	2.515	2.3	DWSS

BORING DEPTH (include sampling depth): 89'

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 5 hr for sampling support

WEATHER CONDITIONS (373-2716)
Temperature: Cloudy 90°

CASING SUMMARY

Drive tip depth (shift start)	89'
Drive tip depth (shift end)	/
Casing stick up (shift end)	1.3'
Drive String Length	90.3'

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Passey, Sharp, ~~Passey~~ Ko, Weakley, Young, Willus, Walkup, Randall

TIME		WORK SUMMARY
0:600	06:40	Paperwork and safety meeting at office, (topic = Fire extinguishers)
06:40	08:00	Travel to 200 East, Acc in, travel to SX farm
08:00	08:15	Pre-job at SX farm
08:15	10:15	Dress into whites, enter SX farm, P.N.G begin logging, Pull dummy
—	—	tip, inspect rig, survey out
10:15	11:30	Stand-by for samplers support, work on pressure washer
—	—	while stand-by NOTE: The HHUXL decommissioned C7187A, moved to
11:30	12:00	Lunch C7187 and hit refusal @ 34.5 FT. Decommission C7187.
12:00	14:40	Continue stand-by for Sampling support, picked up oil, and
~~14~~	—	concrete at Chemical storage, Picked up bolts for shedes and generators.
—	—	P.N.G. spectral gamma logged hole C7167 from 96.5 to 36'
14:40	15:30	Travel to office, paperwork, time cards.
		NA

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06/01/09
PRINT: Kelly Olson
SIGNATURE: Kelly Ol

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/03/09
PRINT: D.E. Skaglie
SIGNATURE: Dan E Skaglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7178 C-7191 WELL NUMBER: NA REPORT NUMBER: 30 DATE: Tuesday 06-02-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN - 3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: Sampling, Logging

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25L 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 38' - Rig #2 / 72' - HHUXL

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.875"	CS	2.815"	2.3'	Duss
2.5"	1.75"		2.875"	2.3'	S.W.

BORING DEPTH (include sampling depth)
C-7178 = 127'
C-7191 = 72'

START TIME: 06.00
END TIME: 15:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: NA

WEATHER CONDITIONS (373-2716)
Temperature: 85° Breezy,

CASING SUMMARY

	C-7178	C-7191
Drive tip depth (shift start)	89'	0
Drive tip depth (shift end)	127'	72'
Casing stick up (shift end)	3.3'	2.3'
Drive String Length	130.3'	74.3'

SAMPLE SUMMARY
B20708 - 89' to 91', Driven at 9:15, 100% Recovery

OPERATOR: Olson
License # 1217
Passey, Clark, Walker, Weakley, Sharp, Young, Willis, Randall

TIME		WORK SUMMARY
06:00	07:10	Paperwork, cost estimates, safety meeting at office (subject = sunscreen)
07:10	07:45	Travel to SX farm
07:45	08:10	Pre-job at SX Farm
08:10	12:30	Dress into whites, HHUXL moved from ~~C-7178~~ C-7187 to C-7191 and set up zone, moved equipt and drove 2½" casing from 0' to 60', Rig #2 fueled rig C7178
—	—	Pulled dummy tip, installed sampler, drove sample #B20708 from 89' to 91'
—	—	at 9:15, Pulled and processed sample (100% recovery). P.N.G begin logging.
—	—	installed Dummy tip, drove dual wall to 104' bgs. survey out
—	—	.5 hr on HHUXL to repair leaks.
12:30	1:00	Lunch
1:00	14:40	Dress into whites, Drove hole C-7178 to sample depth 127',
—	—	HHUXL drove hole #C-7191 to 72', P.N.G. Gamma logged C-7167 41' to 0.5'
14:40	15:30	Travel to office, Paperwork, time cards
		N/A

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-02-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/05/09
PRINT: D. F. Skoglie
SIGNATURE: Dwt Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7178 C-7191 WELL NUMBER: NA REPORT NUMBER: 31 DATE: Wednesday 06-03-09

CONTRACT NUMBER: 36472-02 START CARD NO: S27649/A118512 EXCAVATION PERMIT: DAN -3650 RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 / HHUXL AHA: AHA-09-001 Rev. 1

PURPOSE: sampling, logging, drive exploratory boring REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0 LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level TOTAL SHIFT FOOTAGE: C-7178- 112' pulled / C-7191- 8'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.825"	CS	2.815"	2.3'	DWSS
2.5"	1.75"		2.875"	2.3'	S.W.

BORING DEPTH (include sampling depth)

START TIME: 06:00
END TIME: 15:20
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:
C-7178 1 hr 40 min for wind
C-7191 2 hr waiting for direction

WEATHER CONDITIONS (373-2716)
Temperature: 91° Sunny, Breezy

CASING SUMMARY

	C-7178	C-7191
Drive tip depth (shift start)	127'	72'
Drive tip depth (shift end)	16'	80'
Casing stick up (shift end)	2.3'	2.3'
Drive String Length	18.3'	82.3'

SAMPLE SUMMARY
N/A

OPERATOR: K. Olson
License # 1217
Walkup, Clark, Passey, Dopsey, Young, Wittus, Sharp, Weakley

TIME		WORK SUMMARY
06:00	06:40	Paperwork, safety meeting at office (subject = dress/undress in Rad Zones)
06:40	07:20	Fuel pick-up, travel to SX farm
07:20	07:50	Pre-job at SX Farm
07:50	11:30	Entered farm, Back pulled inner rod at C7178, found seperated
—	—	joint at #24, and second break at #28, Back pulled outer 2⅝"
—	—	casing from 127' to 24', Lost #25 and #26 joint to contamination.
—	—	P.N.G on site, Mike Dorsey survey in elevations of borings. Drove
—	—	C-7191 from 72' to 80' (Refusal) Let head cool down twice. survey out
11:30	12:00	Lunch
12:00	13:40	Pick up additional inner rods at C-Farm while stand by for wind.
13:40	14:40	Pull casing from 24' to 16' at C-7178, Pull inner Rod & inspect tip.
—	—	Secure HHUXL site, while stand-by for direction, survey out.
14:40	15:30	Travel to office, time cards and paperwork.

N/A

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-03-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 6/03/09
PRINT: D.E. Skoglie
SIGNATURE: Dan E. Skoglie

Items used - 1 - 2⅝" Drive head
6 - Lynch pins
1 - Retainer Pin

ENERGY SOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of

WELL I.D.: C-7178 (K.O.) C-7191A/C7191 WELL NUMBER: NA REPORT NUMBER: 32 DATE: Thursday 06-04-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit

CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: sampling, exploratory borings.

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: C-7178 - 111' / C-7191A - 80' Pulled / C-7191 - RE-DRIVE

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.625"	1.825"	CS	2.815"	2.3'	DWSS
2.5"	1.75"		2.875"	2.3'	S.W.

BORING DEPTH (include sampling depth)

C-7178 = 127'

C-7191A = 0'

C-7191 = 57.5

START TIME: 06:00

END TIME: 15:30

CONTRACTOR TIME: .5 hr

TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:

WEATHER CONDITIONS (373-2716)

Temperature: 93° Partly Cloudy

CASING SUMMARY

	C-7178	C-7191A	C-7191
Drive tip depth (shift start)	16'	80'	0'
Drive tip depth (shift end)	127	0'	58.5
Casing stick up (shift end)	3.3'	0'	18
Drive String Length	130.3	0'	58.3

SAMPLE SUMMARY

N/A

OPERATOR: Olson

License # 1217

Ehrgott, Clark, Parsey, Sharp, Weakley, Willus, Young,

TIME		WORK SUMMARY
06:00	07:35	Paperwork, Daily and weekly safety meetings, (topic = Boristins and aerosol cans)
07:35	08:20	Travel to SX farm, Ace in at 200 East
08:20	08:40	Pre-job at SX farm
08:40	12:00	Dress into whites, move inner rod and bentonite into SX farm,
—	—	Re drive C-7178 from 16' to 116', Back-pull C-7191A from
—	—	80' to 0', survey out.
12:00	12:30	Lunch
12:30	15:00	Dress in, Re-drive C-7178 from 116' to 127', Move HHUXL from C-7191A
—	—	2' south to C-7191, and drove 2½" casing from 0' to 57.5'
—	—	Dress out, Get Probes ready for installation
15:00	15:30	Travel to office, time cards paperwork.
		N/A

REPORT BY:

TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE

DATE: 06-04-09

PRINT: Kelly Olson

SIGNATURE: Kelly Olson

REVIEWED BY:

TITLE: ES TECHNICAL REVIEWER DATE: 06/04/09

PRINT: D.E. Skoglie

SIGNATURE: David E Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 1

WELL I.D.: C-7177 C-7191 WELL NUMBER: NA REPORT NUMBER: 33 DATE: Friday 06-05-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: sampling, moisture probe boring installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	SW

BORING DEPTH (include sampling depth)
C-7177 - 76'
C-7191 - 82.5'

START TIME: 07:00
END TIME: 15:20
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 1.25 hr for HPT support

WEATHER CONDITIONS (373-2716)
Temperature: 91° sunny

CASING SUMMARY

	C-7177	C-7191
Drive tip depth (shift start)	157'	57.5'
Drive tip depth (shift end)	76'	82.5'
Casing stick up (shift end)	2.3'	3.8'
Drive String Length	78.3'	86.3'

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Ehrgott, Passey, Weakley, Mincy, Banyay, Sharp,

TIME		WORK SUMMARY
07:00	07:15	Paperwork, safety meeting at office (subject = heat stress)
07:15	07:50	Travel to SX farm
07:50	08:10	Pre-job at SX farm
08:10	12:00	Dress into whites, Enter SX farm, HHUXL drove C-7191
—	—	from 57.5' to 75', letting head cool twice at .5hr intervals,
—	—	HHU #2 moved from C-7178 to C7177 because of lack of
—	—	sampling support. HHU #2 back-pulled 2.5" casing from 157' to
—	—	100', installed moisture probe 143' to 141', survey out.
12:00	12:30	Lunch
12:30	13:45	Stand by for R.C.T. coverage (R.C.T.s called into meeting)
13:45	14:45	Dress into whites, HHU #2 back pulled C-7177 from 100' to 76'
—	—	HHUXL drove C-7191 from 75' to 82.5', survey out.
14:45	15:30	Travel to office, time cards, and paperwork.

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-05-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/05/09
PRINT: D.E. Skoglie
SIGNATURE: D.E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7191 C-7178 C-7177 WELL NUMBER: NA REPORT NUMBER: 34 DATE: Monday 06-08-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit

CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: moisture probe boring installation, moisture probe installation, sampling

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: HHUXL = 73' C-7191 Rig #2 - C-7177 Pulled 76'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	S.W.
2.625"	1.875"		2.815"	2.3'	DUSS

BORING DEPTH (include sampling depth)

C-7177 = 0' C-7191 = 155.5' C-7178 = 127'

START TIME: 07:00

END TIME: 16:30

CONTRACTOR TIME: .5

TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 1 hr for RCT meeting (2 hr sampling support Rig #2)

WEATHER CONDITIONS (373-2716)

Temperature: 82° Partly cloudy

CASING SUMMARY

	C-7177	C-7191	C-7178
Drive tip depth (shift start)	76'	82.5'	127'
Drive tip depth (shift end)	0	155.6'	127'
Casing stick up (shift end)	'	2.8'	3.3'
Drive String Length	/	158.3'	130.3'

SAMPLE SUMMARY

N/A

OPERATOR: Olson

License # 1217

Walkup, Passey, Elliott, Weekley, Sharp, Clark, Young

TIME		WORK SUMMARY
07:00	07:40	Travel from office, Arr in at 'Smerf bldg'
07:40	08:15	Pre-job at SX farm
08:15	12:10	Enter SX farm, Back Pull 2.5" casing at C7177 from 76' to
—	—	60', set second probe at 75' to 73', send 77' to 70', Lost 3 joints
—	—	97' to 109' to contamination, HHUXL Drove from 82.5' to 96', let head
—	—	cool, Drove to 115' Back pulled C-7177 from 60' to 0', Lost 10 joints to
—	—	contamination. (From bottom #2, #5, #6, #7, #8, #9, #10, #12, #13 + #14', survey out.
12:10	12:40	Lunch
12:40	14:40	Rig #2 - stand-by for sampling support after set-up on hole C-7178
—	—	(13:10-14:40) stand-by for RCT support 14:40 to 15:40, HHUXL drove
—	—	2.5" casing 115' to 155.5'. survey out.
14:40	16:30	Travel to office - Paperwork and time cards
		NA

REPORT BY:

TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE

DATE: 06-08-09

PRINT: K. Olson

SIGNATURE: Kelly Olson

REVIEWED BY:

TITLE: ES TECHNICAL REVIEWER DATE: 06/10/09

PRINT: D.E. Skoglie

SIGNATURE: Donald E Skoglie

Items used 1-100' moisture Probe

14 Lynch pins

Lost 10 2.5" Rods to contamination

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7178 WELL NUMBER: NA REPORT NUMBER: 35 DATE: Tuesday 06-09-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit

CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: Sampling, Moisture probe boring installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: HHU #2 = 29' HHUXL = 1.1'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	S.W
2.625"	1.875"		2.815"	2.3'	DUSS

BORING DEPTH (include sampling depth)

C-7178 = 151'

C-7191 = 156.6

START TIME: 07:00

END TIME: 16:30

CONTRACTOR TIME: 15

TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:

HHUXL 3 hr for training
3 hr for direction

HHU #2 .75 hr for samples

WEATHER CONDITIONS (373-2716)

Temperature: 80° Partly cloudy

	C-7178	C-7191
CASING SUMMARY		
Drive tip depth (shift start)	127'	155.5
Drive tip depth (shift end)	151	156.6
Casing stick up (shift end)	3.3	2.2
Drive String Length	154.3	154.3

SAMPLE SUMMARY

Sample# B20710 - 127'-129' at 11:25 100% Rec.

OPERATOR: Olson

License #1217

Passey, Clark, Sharp, Willus, Young, Walkup, Ehrgott, Weakley

TIME		WORK SUMMARY
07:00	07:10	safety meeting at office = (subject = West Nile virus)
07:10	07:45	Travel to SX farm
07:45	08:15	Pre-job at SX farm
08:15	10:15	Dress into whites, RCTs checked, Air samplers pulled inner rod at C-7178,
–	–	installed sampler to 127', set up to drive sample, HHUXL stand-by
–	–	for training.
10:15	11:00	Stand-by for samplers (fuel pick-up)
11:00	12:30	Enter farm HHUXL drove C-7191 to Refusal 156.6, HHU #2
—	—	Drove sample #B20710 from 127' to 129' at 11:25, Pulled and processed
—	—	sample. 100% Recovery
12:30	1:00	Lunch
1:00	15:30	HHUXL stand-by for direction in P.M, did maintence, HHU #2 installed
—	—	dummy tip, drove dual wall 127' to 151', survey out.
15:30	16:30	Travel to office, time cards, paperwork

REPORT BY:

TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE

DATE: 06-09-09

PRINT: Kelly Olson

SIGNATURE: Kelly Ol

REVIEWED BY:

TITLE: ES TECHNICAL REVIEWER DATE: 06/09/09

PRINT: D. E. Skoglie

SIGNATURE: D. E. Skoglie

Items used
2- Lynch pins
4- O Rings
3- Samplers liner
6- ccps

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7178 C-7183 WELL NUMBER: NA REPORT NUMBER: 36 DATE: wednesday 06-10-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: sampling, logging, Probe hole installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: C-7178: 2' Driven 153' pulled C-7183 = 62'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	S.W
2.625"	1.875"		2.815"	2.3'	DUSS

BORING DEPTH (include sampling depth)

C-7178 = 0

C-7183 = 63'

START TIME: 07:00

END TIME: 16:30

CONTRACTOR TIME: "S

TOTAL TIME: 9hr

DOCUMENTED DOWNTIME: Rig #2 1 hr for RCT's

WEATHER CONDITIONS (373-2716)

Temperature: 92° sunny

CASING SUMMARY

	C-7178	C-7183
Drive tip depth (shift start)	151'	0
Drive tip depth (shift end)	153.0'	63'
Casing stick up (shift end)	—	3.3'
Drive String Length	—	66.3'

SAMPLE SUMMARY

#C-7178- SAMPLE #B20712 + 713 - 151' to 153' driven at 10:10 - 100% Rec

OPERATOR: Olson

License #1217

walkup - clark, sharp, wittes, Young, sicdell, Weekly, Chrisett, Persey

TIME		WORK SUMMARY
07:00	07:25	safety meeting, papework at office, (subject- Drinking water)
07:25	08:00	Travel to SX farm
08:00	08:15	Pre-job at SX farm
08:15	11:30	Dress into whites, HHUXL rig inspection, tighten fittings, move rig
—	—	and equipment to C 7183, HHU #2 - rig inspection, pull dummy tip
—	—	at C7178, install sampler drove sample #B20713 from 151' to 153'
—	—	100% Recovery, Pulled and processed sample, HHUXL finish set up.
11:30	12:00	Lunch
12:00	15:30	HHU #2 crew stand-by, for RCT 1hr HHUXL crew enter farm drive boring
—	—	C-7183 from 0' to 63' P.N.G. Gamma logged C-7191 from
—	—	154' to 92', HHU #2 back-pulled C-7178 from 153' to
—	—	0', Surveyed out equipment, secured sites.
15:30	16:30	Travel to office, Time cards, papework

N/A

REPORT BY:

TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE

DATE: 06-10-09

PRINT: Kelly Olson

SIGNATURE: Kelly Olson

REVIEWED BY:

TITLE: ES TECHNICAL REVIEWER DATE: 06/11/09

PRINT: D E. Skoglie

SIGNATURE: Daniel E. Skoglie

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7180 C-7183 | WELL NUMBER: NA | REPORT NUMBER: 37 | DATE: Thursday 06-11-09

CONTRACT NUMBER: 36472-02 | START CARD NO: S27649/A118512 | EXCAVATION PERMIT: DAN -3650 | RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2 / HHUXL | AHA: AHA-09-001 Rev. 1

PURPOSE: Moisture probe boring installation, Probe installation, spectral gamma logging | REFERENCE: FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 0 | LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level | TOTAL SHIFT FOOTAGE: C-7180 - Drove 48' - Pulled 44' C-7183 - 64'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	S.W.
2.625"	1.875"		2.815"	2.3	DWSS

BORING DEPTH (include sampling depth): C-7180 - 48; C-7183 - 127'

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME:
TOTAL TIME: .5 9 hrs

DOCUMENTED DOWNTIME: N/A

WEATHER CONDITIONS (373-2716)
Temperature: 83° Sunny

CASING SUMMARY

	C-7180	C-7183
Drive tip depth (shift start)	0	63'
Drive tip depth (shift end)	4'	127'
Casing stick up (shift end)	2.3	3.3'
Drive String Length	6.3	130.3'

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Walkup, Weakley, Hogsett, Sharp, Clark, Wittus, Young, Randall

TIME		WORK SUMMARY
07:00	07:35	safety meeting at office (subject - acing in) Travel to SX farm
07:35	08:15	Pre-job at SX farm, prepare moisture Probes
08:15	12:00	Dress into whites, HHU #2 move rig and equipment
—	—	from C-7178 to C-7180, set up rig and zone, drove dual
—	—	wall from 0' to 40', PNG Begin logging, HHUXL drove hole
—	—	C-7183 from 63' to 99', survey out.
12:00	12:30	Lunch
12:30	15:20	HHUXL Drove C-7183 from 99' to 127', HHU#2 Drove
—	—	C-7180 from 40' to 48', Pulled inner rod for 'o' rings inspection,
—	—	found broken Joint at 11 joints down, backpulled C-7180 from
—	—	48' to 4' to replace rod. survey out equipment.
—	—	P.N.G. Spectral gamma logged C-7191 from 97' to 76'.
15:20	16:30	Travel to office, paperwork time-cards

N/A

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-11-09
PRINT: Kelly Olson
SIGNATURE: Kelly Ol

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/11/09
PRINT: D.E. Skoglie
SIGNATURE: Dal Skoglie

ENERGY SOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: C-7180 C-7181 C-7183 WELL NUMBER: NA REPORT NUMBER: 38 DATE: Monday 06-15-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit

CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: Sampling, moisture probe boring installation, moisture probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: C-7180 = 76' (Rig 2) C-7183 = 26.8' (HHUXL) C-7181 4' pulled

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875	2.3'	S.W
2.625"	1.875"		2.815"	2.3'	DWSS

BORING DEPTH (include sampling depth)
C-7183 = 153.8'
C-7180 = 80'
C-7181 = 81'

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:
1.75 hr for RCT - Rig #2
.75 for RCT - 1 hr for meeting HHUXL

WEATHER CONDITIONS (373-2716)
Temperature: 90° Sunny

CASING SUMMARY

	C-7180	C-7183	C-7181
Drive tip depth (shift start)	4'	127'	156'
Drive tip depth (shift end)	~~153.8~~ 80'	153.8'	152'
Casing stick up (shift end)	2.3	.6	2.3
Drive String Length	82.3'	154.3'	154.3

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Walkup, Weakley, Ehrsoff, Clark, Wittus, Young, Siedell

TIME		WORK SUMMARY
07:00	07:15	Safety meeting at office
07:15	08:00	Travel to 200 East, Ace in, Travel to SX Farm
08:00	08:15	Pre-job at SX farm
08:15	10:05	Dress into whites, HHU#2 inspected all inner rods, found none
—	—	defective, re-drove sample boring #7180 from 4' to 48', HHUXL drove
—	—	C-7183 from 127' to 153.8'
10:05	10:20	Water break
10:20	12:15	Dress in, HHU#2 drove dual wall from 48' to 68', HHUXL moved
—	—	Rig and equipment to C-7181, set-up, back pulled from 156'
—	—	to 152', attempted to knock out tip, no success, dress out.
12:15	12:45	Lunch
12:45	13:30	Stand-by for RCTS
13:30	14:45	Enter farm drove C-7180 from 68' to 80', with HHU#2
—	—	HHU-XL crew attended meeting for C-Farm at 'Smerf' see-page 2

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-15-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 6/17/09
PRINT: D.E. Skoglie
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No.	Continuation of Report No.
06-15-09 Monday	C-7180 C-7183 C-7181	38

DESCRIPTION OF OPERATIONS/REMARKS

14:45- 16:30	Travel to office, time cards, paperwork
	N/A

Report By	K. Olson	Reviewed By	ES Technical Reviewer DES Khoshi		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	6/17/09
Signature	Kelly Ol	Signature	Dual S. Khoshi		

Items used = 8 Lynch pins
2. nylatrol washers

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: C-7180 C-7191 C-7181 WELL NUMBER: NA REPORT NUMBER: 39 DATE: Tuesday 06-16-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit

CAT HHU #2 / HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: Sampling, probe installation, logging

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: C-7180 - 13' driven C-7181 - 4' pulled.

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	SW
2.625"	1.875"		2.815"	2.3'	DWSS

BORING DEPTH (include sampling depth)
C-7180 - 93'
C-7181 -

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME:
.5 hr for RCT
.5 hr for drug tests

WEATHER CONDITIONS (373-2716)
Temperature: 90° mostly sunny

CASING SUMMARY

	C-7180	C-7181
Drive tip depth (shift start)	80'	152'
Drive tip depth (shift end)	93'	148
Casing stick up (shift end)	1.3'	2.3
Drive String Length	94.3'	150.3

SAMPLE SUMMARY
NA

OPERATOR: Olson
License # 1217
Clark, Walkup, Sharp, Siedell, Randall, Weakly, Ehrgott, Parrey, Young, Wilton

TIME		WORK SUMMARY
06:00	06:40	Paperwork - safety meeting at office = (Subject = traffic safety)
06:40	07:30	Fuel pick-up, travel to SX farm
07:30	08:00	Pre-job at SX Farm
08:00	11:00	C7180 Enter farm, HHU#2 pulled dummy tip (after driving from 80' to 86')
—	—	installed sampler, drove sample 86' to 88', pulled sample, no recovery,
—	—	(large gravels, cobbles) HHUXL installed inner rod to 152' at C-7181
—	—	and attempted to drive out tip (no success) P.N.G. Logging C-7191.
11:00	11:15	water break - discuss course of action for both sites,
11:15	12:30	(Decided to re-sample at 93-95 at C-7180, and back-pull C-7181),
—	—	Installed inner rod and dummy tip at C-7180', drove C-7180'
—	—	from 88' to sample depth of 93', HHUXL begin pulling inner
—	—	rod, joints very tight, dress out and survey equipment
12:30	13:00	Lunch
13:00	13:30	Stand-by for R.C.T. support. - see page 2

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06/16/09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER DATE: 6/18/09
PRINT: D.E. Skoglie
SIGNATURE: Dave Skoglie

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
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Date	Well No.	Continuation of Report No.
06-16-09	C-7180 C-7191 C-7181	39

DESCRIPTION OF OPERATIONS/REMARKS

13:30 - 15:00	Enter farm HHU #2 pulled dummy tip from 93' at C-7180 installed sampler to depth and set up to drive sample in A.M., P.N.G. spectral gamma logged hole C-7191 from 41' to 0' survey out personel and equipment,
15:00 - 16:30	Mike Ehrgott and Kelly Olson had to leave for drug test's, Mike Walker had to leave for physical mask fit, Travel to office, time cards, paperwork.

N/A

Report By K. Olson		Reviewed By	D.E. Skoglie		
Title operator	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	6/18/09
Signature Kelly Olson		Signature	Dave Skoglie		

Items - Used - 1 2.5" by four foot lost to contamination - C-7181

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7180 C-7181 WELL NUMBER: NA REPORT NUMBER: 40 DATE: wednesday 06-17-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3658

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2/HHUXL

AHA: AHA-09-001 Rev. 1

PURPOSE: Logging

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	SW
2.625"	1.875"		2.815"	2.3'	Dwss

BORING DEPTH (include sampling depth)
C-7180 - 93'
C-7181 - 148'

START TIME: 7:00
END TIME: 16:30
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 9 hr for wind HHUXL & HHU #2

WEATHER CONDITIONS (373-2716)
Temperature: windy, cloudy, 82°

CASING SUMMARY

Drive tip depth (shift start)	C-7180 - 93'	C-7181 - 148'
Drive tip depth (shift end)	93'	148'
Casing stick up (shift end)	1.3'	2.7'
Drive String Length	94.3'	150.3'

SAMPLE SUMMARY
N/A

OPERATOR: Obolt
License # 1217
Walkup, Wankly, EHRBOTT B. RALIDALL

TIME		WORK SUMMARY
07:00	12:30	Daily safety meeting and monthly meeting at office -
—	—	(Daily topic = complacency, monthly topic = modesty clothing)
—	—	AOP-008 in effect until 12:30, no HHU activity in farm,
—	—	P.N.G. moisture and gamma logging, begin putting together
—	—	parts for soil clean-out at Energy N.W.
12:00	12:30	Lunch
1230	1430	AOP-008 CALLED OFF, ENTER SX-FARM TO INSPECT
—	—	THREADS ON INNER Rods (Box & PIN). 11-4' INNER Rod TAKEN
—	—	OUT OF SERVICE. ~~while~~ NOTICED CRACK IN CROSS-OVER
—	—	SUB on HHU #2, ALSO BENT SWIVEL on CABLE
—	—	WINCH SYSTEM. WAS TAKEN OUT OF SERVICE.
—	—	P.N.G. LOGGING ACTIVITIES: C7183 SPECTRA GAMMA FROM 151.5'bgs
—	—	TO 125.0 bgs. C7191 MOISTURE FROM 152.0 bgs TO 77.0'bgs
1500	1530	SECURE SITE, LEAVING SITE FOR OFFICE.

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 6/17/09
PRINT: MIKE EHRBOTT
SIGNATURE: Mike Ehrbott

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/18/09
PRINT: D.E. Skoglie
SIGNATURE: Daniel E Skoglie

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Geophysical logging, sampling and HHU repair. **DATE:** 06/18/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 41

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B20714 B20715	93-95	100%
2.		
3. N/A		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No *HHU CASE#1* (HHU CAT #2) (HHUXL#3)

BOREHOLE SUMMARY

Borehole # C7180 Tubing (2 5/8) @ 93 to 104 ft bgs; S.U. 1.4'

Borehole # _____ Tubing ( ) @ N/A to ft bgs; S.U. _____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. _____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C7183	125-66	SG
2. C7191	77-0	M
3. N/A		

TIME	WORK SUMMARY
0700	Daily safety meeting (Daily topic - Hand Safety).
0745	P.N.G. gamma logging in C7183 and moisture logging in C7191.
0830	The HHU#2 CAT was surveyed out of the SX tank farm. The drive
1000	head seal and adapter was removed from the CAT HHU. The seal
—	Kits on hand did not contain the correct size of seal. Order the
—	correct seal from TEI. Seal should arrive Monday June 22nd.
11:45	Lunch
12:15	Enter SX Tank Farm and ready to sample.
12:45	C7180: HHUXL drove sample from 93 to 95 FT bgs. Sample
—	recovery 100%. Sample numbers B20714 and B20715.
13:25	Trip in inner tubing and drive point.
14:10	Drive tubing to 104 ft bgs (next sample interval)
1430	Trip inner tubing out of 2 5/8 tubing.
1500	Secure Site and equipment. 1530

N/A

OPERATOR/LICENSE: OLSON #1217
ES SUPPORT: Walkup, Weakly, Ehrgott
NCO: Rivera, Siedell B. Randall
HPT: Wiadis
FWS: Clark

WEATHER: 84 F

DOWNTIME: 1.5 hrs HPT

DISCARDED ITEMS: HHU#2 Drive Head Seal Head Adapter

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: David E. Skoglie for

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 6/19/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling and HHU repair. **DATE:** 06/19/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 42

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B20716/17	104-106	100
2. B20718/19	127-129	100
3. N/A		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) (HHUXL#3)

BOREHOLE SUMMARY

Borehole # C7180 Tubing (2 5/8) @ 104 to 129 ft bgs; S.U. 1.5'

Borehole # _____ Tubing ( ) @ N/A to ft bgs; S.U. ____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.		
2.	N/A	
3.		

TIME	WORK SUMMARY
0700	Daily safety meeting (Daily topic. Working together).
0800	Trip inner tubing and sampler to depth @ C7180.
0858	Drove sample from 104 to 106 @ 0858 hrs. Sample #'s B20716 and 17
0925	Trip sampler to surface and package material.
0945	Trip inner tubing and drive point to depth.
1000	Drove tubing (DWSS) to a depth 127 ft bgs. Lunch 12:00 - 12:30
1250	Trip inner tubing from 2 5/8 tubing.
1305	Trip inner tubing and sampler to depth.
1340	Drove sampler from 127 to 129 ft bgs @ 1340 hrs.
1400	Trip sampler to surface and package material. 100% Recovery
—	Sample numbers are B20718 and B20719.
1425	Trip inner tubing and drive tip to depth.
1500	Secure site and equipment. 1530 hrs.
	Note: Reports 1 through 42 include HHU #2 CAT and HHUXL #3 daily operations. Reports 43 on will be HHU specific.
	N/A

OPERATOR/LICENSE: OLSON #1217
ES SUPPORT: Wallcup, Weakly, Ehrgott
NCO: Rivin, Siedell
HPT: Widdis
FWS: Clark

WEATHER: 87 F

DOWNTIME: N/A

DISCARDED ITEMS: Sampling liners - 6

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: K. Olson
TITLE: *ES TECHNICAL PREPARER*
SIGNATURE: David E. Skoglie for

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 06/19/09

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations HHU#2

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7181 WELL NUMBER: NA REPORT NUMBER: 43 DATE: Monday 06-22-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Rig maintanance

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	SW

BORING DEPTH (include sampling depth)

START TIME: 05:30
END TIME: 15:00
CONTRACTOR TIME:
TOTAL TIME: 5 hr 9 hr

DOCUMENTED DOWNTIME: N/A

WEATHER CONDITIONS (373-2716)
Temperature: 75° Breezy, cloudy

CASING SUMMARY
Drive tip depth (shift start) 153
Drive tip depth (shift end) —
Casing stick up (shift end)
Drive String Length —

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Sharp, Passey, Clark, Rivera, Young,

TIME		WORK SUMMARY
05:30	05:40	safety meeting at office (rig position for shade) = Topic.
06:40	06:15	Travel to SX farm
06:15	07:25	Pre-job at SX farm
07:25	11:30	Ace in at 'smart' building, return to SX farm, work
—	—	on cleaning sub and prepping cat HHU#2 for re-assembly,
—	—	worked on clean out barrels, and got tip ready with
—	—	'O' ring, for 2.5" casing.
11:30	12:00	Lunch
12:00	15:00	Travel to office and training (Olson & Repko)
—	—	Mike Passey worked on winch cable on cat Rig #2
	—	and hydraulic value on HHU#1, Mike Passey continue
—	—	maintanance at SX farm, Olson & Repko did HAET training
		N/A
		N/A

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-22-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/23/09
PRINT: D.E. Sloglin
SIGNATURE: David E Sloglin

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: C7180	**WELL NUMBER:** N/A	**REPORT NUMBER:** 43	**DATE:** 06/22/09

CONTRACT NUMBER: 36472-02	**START CARD NO:** S27649/A118512 **EXCAVATION PERMIT:** DAN3650	**RIG MODEL/NO:** Hydraulic Hammer Unit BERETTA HHUXL #3 AHA: AHA-09-001 Rev. 1

PURPOSE: Complete sampling activities at #C7180 and begin decommissioning.	**REFERENCE:** FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 000	**LOCATION:** SX Tank Farm SW SE Section 12 25E 12N

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 23.0'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.635"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH *(include sampling depth)*

START TIME: 0600 Hrs.
END TIME: 1530 Hrs.
CONTRACTOR TIME: ½ Hr.
TOTAL TIME: 9 Hrs.

DOCUMENTED DOWNTIME:
1/2 HRS. - HPT'S 1 HR. 5 MIN. - WIND
1/4 HRS. - RAIN

WEATHER CONDITIONS (373-2716)
Temperature: 78 degrees, breezy and partly cloudy.

CASING SUMMARY

Drive tip depth (shift start)	#C7180—129.0' bgs
Drive tip depth (shift end)	#C7180-- 106.0' BGS
Casing stick up (shift end)	#C7180-- 2.3'
Drive String Length	#C7180-- 108.3'

SAMPLE SUMMARY
B20H67 & B20H68 - 152.0' TO 154.0'

OPERATOR: Walkup
License #3005
Clark, Weakley, AMOS, SHARP, SEIDEL, WIDDIS, YOUNG, RANDALL, RUST, ROSANE.

TIME		*WORK SUMMARY*
0500	0530	TIMECARD AND PAPERWORK AT OFFICE. SAFETY TOPIC:
—	—	POSITIONING RIG TO UTILIZE SHADE.
0530	0630	TRAVEL TO SMURF AND ACE. TRAVEL TO "SX" FARM.
0630	0815	STAND BY FOR HPT'S. AND RAIN.
0815	0845	DRESS AND ENTER "SX" FARM. INSPECT EQUIPMENT. NO
—	—	PROBLEMS NOTED.
0845	1011	DRIVE DUAL WALL WITH DUMMY TIP FROM 129.0' BGS TO
—	—	LAST SAMPLE AT 152.0' BGS. PULLED INNER ROD AND
—	—	DUMMY TIP.
1011	1045	RUN INNER STRING AND SAMPLER IN HOLE. DID NOT
—	—	DRIVE SAMPLE DUE TO WIND. SECURED SITE AND
—	—	EXITED FARM
1045	1130	STANDBY FOR WIND
1130	1200	LUNCH

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06/22/09
PRINT: MIKEL WALKUP
SIGNATURE: [signature]

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/23/09
PRINT: D.E. SKOGLIE
SIGNATURE: David E. Skoglie

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No.	Continuation of Report No.
06-22-09	C7180	43

DESCRIPTION OF OPERATIONS/REMARKS

1200-1220	STANDBY FOR WIND
1220-1237	DRESS AND ENTER FARM.
1237-1322	DRIVE SAMPLE FROM 152.0 BGS TO 154.0' BGS AT 1238 HRS
—	AND RETRIEVE. 100% RECOVERY. SAMPLE #'S 820467 AND
—	820468
1322-1440	BACK-PULL 2 5/8" FROM 154.0' BGS TO 106.0' BGS
—	SECURED SITE AND EXITED FARM. RNG COMPLETED GAMMA
—	LOGGING FROM 22.5' TO 0.5' IN BORING # C7183.
1440-1530	TRAVELED TO OFFICE AND COMPLETED PAPERWORK.

N/A

Report By	MIKEL WALKER	Reviewed By	ES Technical Reviewer D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	06/23/09
Signature	Mikel Walker	Signature	Dan Skoglie		

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

HHU #2

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7181 WELL NUMBER: NA REPORT NUMBER: 44 DATE: Tuesday 06-23-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN -3650

RIG MODEL/NO: Hydraulic Hammer Unit

CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: maintenance, Probe installation, logging

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 50' pulled C-7181

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	S.W

BORING DEPTH (include sampling depth)

START TIME: 05:30
END TIME: 15:00
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: NA

WEATHER CONDITIONS (373-2716)

Temperature: 85° sunny

CASING SUMMARY

Drive tip depth (shift start) C-7181 ~~154'~~ 152

Drive tip depth (shift end) 104'

Casing stick up (shift end) 2.3'

Drive String Length 106.3

SAMPLE SUMMARY

NA (Probe-140-142')

OPERATOR: Olson

License # 1217

Repko, Clark, Parsey, Sharp, Rivera, Young, Wittus, Weakley

TIME		WORK SUMMARY
05:30	05:45	safety meeting at office (Hot core samples)
05:45	06:15	Travel to SX Farm
06:15	06:50	Pre-job at SX Farm
06:50	08:15	install new lower grease seal and Cross-over sub on HHU#2, move
08:15	11:30	rig into farm and set up on C-7181, set up zone and
—	—	air samplers, Back-pull 3 joints of 2.5" casing from ~~154'~~ 152' to 146',
—	—	clean out soil above tip with clean out tool, install inner rod and
—	—	drive out expendable tip, Pull inner rod, survey out.
11:30	12:00	Lunch
12:00	14:20	Worked on ECN#s for probe tags Dress into whites, back
		Pull C-7181 from 146' to 104', set probe at 142', lost 11 joints to
		contamination, P.N.G. Moisture logged C-7183 from 152' to 54'.
14:20	15:00	Paperwork, travel to office - Time cards
		N/A

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-23-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 6/25/09
PRINT: David E. Skoglie
SIGNATURE: David E Skoglie

Items used - 1 cross-over sub
1 2.5" expendable tip
1 150' moisture probe
11 2.5" x 4' Rods

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: C7180 & C7170	**WELL NUMBER:** N/A	**REPORT NUMBER: 44**	**DATE:** 06/23/09

CONTRACT NUMBER: 36472-02	**START CARD NO:** S27649/A118512 **EXCAVATION PERMIT:** DAN3650	**RIG MODEL/NO:** Hydraulic Hammer Unit BERETTA HHUXL #3 AHA: AHA-09-001 Rev. 1

PURPOSE: Complete decommissioning of #C7180 and begin sampling activities at #C7170.	**REFERENCE:** FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 000	**LOCATION:** SX Tank Farm SW SE Section 12 25E 12N

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 40.0'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.635"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH *(include sampling depth)*

START TIME: 0600 Hrs.
END TIME: 1530 Hrs.
CONTRACTOR TIME: ½ Hr.
TOTAL TIME: 9 Hrs.

DOCUMENTED DOWNTIME:

WEATHER CONDITIONS (373-2716)
Temperature: 77 degrees and sunny

CASING SUMMARY

Drive tip depth (shift start)	#C7180—106.0'	#C7170—G.S.
Drive tip depth (shift end)	#C7180—G.S.	#C7170-- 40.0'
Casing stick up (shift end)	#C7180—N/A	#C7170-- 2.3'
Drive String Length	#C7180—N/A	#C7170-- 42.3'

SAMPLE SUMMARY

N/A

OPERATOR: Walkup
License #3005
Clark, Weakley, Ehrgott, Amos, RANDALL, WIDAUS, YOUNG, RIVERA, SEIDEL, MINCEY
Amos, Ehrgott

TIME		*WORK SUMMARY*
0500	0530	PAPERWORK AT OFFICE, AND SAFETY MEETING. TOPIC:
—	—	BURNS FROM HOT TOOLING.
0530	0610	TRAVEL TO "SX" FARM.
0610	0650	STANDBY FOR HPT'S.
0650	0700	PRE-JOB AT "SX".
0700	0721	DRESS AND ENTER FARM. FUEL, INSPECT AND WARM RIG. NO
—	—	PROBLEMS NOTED.
0721	0850	BACK-PULLED 2 5/8" CASING FROM 106.0' BGS TO G.S. AND
—	—	DECOMMISSIONED #C7180. USED 7-#50 SKS. BENTONITE
0850	1030	MOBILIZED HHUXL #3 AND SUPPORT EQUIPMENT TO
—	—	#C7170 AND SET-UP.
1030	1130	DROVE DUAL WALL WITH DUMMY TIP FROM G.S. TO
—	—	12.0' BGS. EXITED FARM.
1130	1200	LUNCH

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06/23/09
PRINT: MIKEL WALKUP
SIGNATURE: [signature]

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 6/25/09
PRINT: David E. Skoglie
SIGNATURE: [signature]

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No.	Continuation of Report No.
06/23/09	#C7180 & #C7170	44

DESCRIPTION OF OPERATIONS/REMARKS

1200-1246	DRESS AND ENTER FARM. ~~DRIVE DUAL WALL WITH DUMMY~~
—	~~TIP FROM~~. ALLEN BOLT IN DRIVE HEAD COUPLER HAD BACKED
—	OFF. BACKPULLED DUAL WALL FROM 12.0 BGS TO G.S.
1246-1440	RE-ENTERED SAME BORING AND DROVE DUAL WITH DUMMY
—	TIP FROM G.S. TO 40.0' BGS. SECURED SITE AND EXITED FARM.
1440-1530	TRAVELED TO OFFICE. COMPLETE PAPERWORK.

N/A

Report By	Mikel W. Walkup	Reviewed By	D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	06/25/09
Signature		Signature			

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations Rig # 2

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD Page 1 of 2

WELL I.D.: C-7181 C-7179 WELL NUMBER: NA REPORT NUMBER: 45 DATE: Wednesday 06-24-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN - 3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Probe installation, logging

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: C-7181 - 104' pulled C-7179 - 8' pulled

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	SW

BORING DEPTH (include sampling depth)
C7181 - Pulled to 0'
C-7179 - Pulled to 148'

START TIME: 05:30
END TIME: 15:00
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: N/A

WEATHER CONDITIONS (373-2716)
Temperature: 93° sunny

CASING SUMMARY

Drive tip depth (shift start)	7181 = 104'	C-7179 = 156'
Drive tip depth (shift end)	0	148'
Casing stick up (shift end)	/	2.3
Drive String Length	/	150.3

SAMPLE SUMMARY
N/A

OPERATOR: Olson
License # 1217
Repko, Sharp, Rivera, Weakley, Passey, Young, Willos, Mincey, Clark, ~~Walker~~

TIME		WORK SUMMARY
05:30	05:45	Paperwork, safety meeting at office (subject = Housekeeping)
05:45	06:15	Travel to SX farm
06:15	06:45	Pre-job at SX farm
06:45	09:00	Dress into whites, Fuel generators, back-pull C-7181 from 104'
—	—	to 40', set second moisture probe 75' to 72', added sand & saline
—	—	solution.
09:00	09:25	Break, let rods dry before adding bentonite
09:25	11:30	Dress in, Pull C-7181 from 40' to 0', Lost 6 joints to contamination,
—	—	Moved Rig and equipment to C-7179 and set up, survey out
11:30	12:00	Lunch
12:00	14:30	Taped up 150' probe, dressed into whites, Enter farm, back-pull
—	—	2.5" casing at C-7179 from 156' to 148', lost one joint to contamination,
—	—	installed clean out tool, cleaned out .5" soil from tip, installed inner rod,
—	—	drove out tip, survey out - page 2

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-24-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 06/25/09
PRINT: M.E. Skoglie
SIGNATURE: [signature]

Items used -
7 ~~8~~ 2.5" x 4' Rods
1 - 100' moisture probe
1 - Expendable tip

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No.	Continuation of Report No.
06-24-09	C-7181-/C-7179	45

DESCRIPTION OF OPERATIONS/REMARKS

12:00-14:30	P.N.G moisture logged C-7183 from 60' to 0.25
14:30-15:00	Travel to office, paperwork, time cards.

NA

Report By K. Olson		Reviewed By	D.E. Skoglie		
Title Kelly Olson	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	06/25/09
Signature		Signature	Dan E Skoglie		

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities @ C7170 Change Spindle Sub

SHIFT FOOTAGE:	LOCATION: SX TANK FARM	DATE/RPT #: 06/24/09 #45
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type

N/A

BOREHOLE SUMMARY

Borehole # C7170 Tubing ( ) @ 40 to 59.8 ft bgs; S.U. 2.5%

Borehole # — Tubing ( ) @ to ft bgs; S.U. —

Borehole # — Tubing ( ) @ to ft bgs; S.U. —

SAMPLING SUMMARY

Sample # Interval % Recovery

N/A

TIME	WORK SUMMARY
520	Office safety meeting and POD. Discussed house Keeping.
0600	Pre-job tailgate meeting @ SX Tank Farm.
0700	Dress and enter SX tank Farm.
0730	Conduct site and equipment inspection - no deficiencies noted.
0745	Initiate driving @ C7170. Drive from 40 to 44 ft bgs.
—	The spindle head is cracked. Make calls to Locate new one.
0930	Re-enter tank Farm and remove spindle cross-over.
1045	Drill hole to remove ball bearings.
1100	Replace spindle sub and Baker on spindle
1145	Lunch
1215	Locate additional bearings for the spindle sub.
1237	Enter SX tank Farm and place bearings in head.
1425	Drive tubing from 44 to 59.8 ft bgs.
	(let head cool)

N/A

OPERATOR/LICENSE: Olin Amos PERSONNEL: M. Walkup, Bill Clark, Mike Ehrgott - support, M. Young, Seidel, Rivera, Sharpe, M. Widdis - RCT	WEATHER: 95 F Partly cloudy with wind DOWNTIME: 4 hrs - Spindle sub Replacement	DISCARDED ITEMS: 1- Spindle Sub

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Olin Amos TITLE: Driller SIGNATURE: D.E. Skoglie for	REVIEWED BY: D.E. Skoglie TITLE: ES TECHNICAL REVIEWER SIGNATURE: David E. Skoglie 6/25/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation @ C7179 **DATE:** 06/25/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 46

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	N/A	
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No **HHU CASE#1** (HHU CAT #2) **HHUXL#3**

BOREHOLE SUMMARY DES 06/25/09

Borehole # C7179 Tubing (~~1.48~~ 2½) @ ~~53~~ 148 to 53 ft bgs; S.U. 2.3

Borehole # _____ Tubing ( ) @ N/A to ft bgs; S.U. ____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0530	Safety meeting at office (Topic - communication).
0540	Drive to SX tank Farm.
0615	STAND-by for HPT support. Dress and enter SX Tank Farm.
0700	HHU inspection - grease slide rails.
0727	Trip inner tubing from 148 to surface. Place sand to 145 ft. bgs.
0812	Install moisture probe @ 145 ft bgs. Place sand to 140 ft. bgs.
0840	Place saline solution (~4 gallons).
0847	Dress out for break to let water move into sand.
0900	Dress and enter SX tank farm.
0920	C7179: Back pull 2½ tubing to 70 ft. bgs. 2-sections of tubing were
—	radiologically contaminated (800 cpm). Place bentonite from 140 to 80 ft bgs.
1200	Lunch
1230	A Moisture probe was set-up.
1245	Dress and enter SX tank farm.
1300	Place sand from 80 to 76 ft bgs.
1315	Install moisture probe @ 76 ft bgs. Place sand to a depth of 70 ft. bgs.
1330	Place saline solution (~3 gallons).
1340	Back pull tubing from 70 to 53 ft bgs. 4 sections contaminated tubing.
1430	Placed bentonite from 70 to 54 ft bgs.
1500	Secure site and equipment.
	N/A

OPERATOR/LICENSE: M. Repko
ES SUPPORT: Passey
NCO: Rivera, Sharp
HPT: Widdis, Young
FWS: Clark

WEATHER: 85 F sunny winds 10-20 mph

DOWNTIME: 0.5hr. HPT

DISCARDED ITEMS:
6 - 2½ 4' sections
1 - 150' m. probe
1 - 100' m. probe

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: M. Repko
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: DE Skoglie for

REVIEWED BY: David E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 6/25/09

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: # C7170	**WELL NUMBER:** N/A	**REPORT NUMBER:** 46	**DATE:** 06/25/09

CONTRACT NUMBER: 36472-02	**START CARD NO:** S27649/A118512 **EXCAVATION PERMIT:** DAN3650	**RIG MODEL/NO:** Hydraulic Hammer Unit BERETTA HHUXL #3 AHA: AHA-09-001 Rev. 1

PURPOSE: Continue sampling activities at #C7170.	**REFERENCE:** FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 000	**LOCATION:** SX Tank Farm SW SE Section 12 25E 12N

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 81.5'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.635"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH *(include sampling depth)*

START TIME: 0600 Hrs.
END TIME: 1530 Hrs.
CONTRACTOR TIME: ½ Hr.
TOTAL TIME: 9 Hrs.

DOCUMENTED DOWNTIME:
35 MINS. – HPT'S

WEATHER CONDITIONS (373-2716)
Temperature: 85 degrees, sunny, winds 10-20 mph with gusts to 30 mph

CASING SUMMARY

Drive tip depth (shift start)	#C7170A 59.8'	#C7170 – G.S.
Drive tip depth (shift end)	#C7170A N/A	70' " – ~~81.5'~~
Casing stick up (shift end)	#C7170A N/A	" 3.3'
Drive String Length	#C7170A N/A	83.3'

SAMPLE SUMMARY

N/A

OPERATOR: Walkup
License #3005
Clark, Weakley, Amos, Widdis, Young, Seidel, Rivera, Sharp

TIME		WORK SUMMARY
0500	0530	TIMECARD AND PAPERWORK AT OFFICE. SAFETY MEETING
—	—	WAS HELD. TOPIC: CONTROLLING STORED ENERGY.
0530	0605	TRAVELED TO "SX" FARM.
0605	0640	STANDBY FOR HPT'S
0640	0710	DRESS AND ENTER FARM. FUEL, INSPECT AND WARM RIG.
—	—	NO PROBLEMS NOTED.
0710	0810	DROVE DUAL WITH DUMMY TIP FROM 59.8' BGS TO REFUSAL
—	—	AT 60.0' BGS.
0810	0840	PER H. SYDNOR THE ~~NEW~~ First HOLE # IS C7170 A. ~~BACK PULLED~~
—	—	~~2 5/8" PIPE AND DECOMMISSIONED #C7170 A FROM 60.0' BGS~~
—	—	~~TO G.S.~~ 2 5/8" CASING WAS LEFT IN THE GROUND.
—	—	INNER STRING WAS PULLED.
0840	0910	MOVED HHUXL ~2.0' WEST OF # C7169 PER WRPS AND SET-
—	—	UP ON #C7170A DEL 06/25/09

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06/25/09
PRINT: MIKEL WALKUP
SIGNATURE: [signature]

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 6/25/09
PRINT: D.E. Skuglie
SIGNATURE: D.E. Skuglie

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No.	Continuation of Report No.
06/25/09	#C7170	46

DESCRIPTION OF OPERATIONS/REMARKS

0910-1200	DROVE DUAL WALL WITH DUMMY TIP FROM G.S. TO 64.0' BGS
	EXITED FARM FOR LUNCH. STOPPED ONE TIME FOR ~ 1/2 HR. TO
	LET DRIVEHEAD AND CROSSOVER SUB. COOL.
1200-1230	LUNCH
1230-1H	DRESSED AND ENTERED FARM. DROVE DUAL WALL WITH DUMMY TIP
	FROM 64.0' BGS TO 1st SAMPLE INTERVAL AT ~~84.5'~~ 79.0' BGS. DID
	NOT PULL DUMMY TIP. STOPPED ONE TIME FOR ~ 1/2 HR. TO
	LET DRIVEHEAD AND CROSSOVER SUB. COOL. SECURED SITE AND
	EXITED FARM.
1H	TRAVELED TO OFFICE AND COMPLETED PAPERWORK.
	N/A

Report By	[illegible]	Reviewed By	D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	6/25/09
Signature	[signature]	Signature	[signature]		

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommission C7179 and set-up @ C 7191 **DATE:** 06/26/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 47

START CARD NO. S27649 **DECOMMISSION NO.** A118512 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	N/A	
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No **HHU CASE#1** (HHU CAT #2) **HHUXL#3**

BOREHOLE SUMMARY

Borehole # C7179 Tubing (2 1/2) @ 53 to 0 ft bgs; S.U. N/A

Borehole # _____ Tubing ( ) @ NA to ft bgs; S.U. _____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. _____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.		
2.	N/A	
3.		

TIME	WORK SUMMARY
0530	Travel to SX tank Farm.
0600	Personnel Ace.
0630	Safety meeting at SX tank Farm (discuss Biological hazards).
0710	Dress in SWPs and enter SX tank Farm.
0730	Conduct site and equipment inspection, no deficiencies noted.
0745	Conduct equipment maintenance (refuel, clean and Lube mast).
810	AOP-008 leave SX Farm.
0900	Dress in SWPs.
0920	BACK pull (C7179) from 53 to 24 ft.) place bentonite to 28 ft bgs.
–	7 sections of tubing lost to radiological contamination.
1000	BACK pull from 24 To 6 ft bgs. Bentonite to 7 ft. Lost 1 section tubing.
1018	BACK pull from 6 to surface. Place Bentonite to 1 ft bgs.
1035	Move the HHU CAT #2 And support equipment to C7191 and set-up.
1120	Dress out for Lunch
1135	Lunch
1210	Dress and enter SX tank Farm. Complete set-up @ C7191.
1330	Secure site and equipment - exit SX tank farm.
14:00	Complete documentation.

N/A

OPERATOR/LICENSE: M. WALKup
ES SUPPORT: PASSEY, steffler 3005 weakly
NCO: Snook, Villarreal
HPT: Maganas, cline
FWS: B. CLARK

WEATHER: 85 F sunny and breezy

DOWNTIME: 50 minutes - wind

DISCARDED ITEMS:
8 - 2 1/4 x 4' tubing
3 - 0Ks bentonite

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Mike Passey
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: David E. Skoglie

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 06/26/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

Page 1 of 21 DCT 6/29/09

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities @ C7170.

SHIFT FOOTAGE: 17.2	**LOCATION:** SX TANK FARM	**DATE/RPT #:** 06/26/09 #47
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	**DAN-3650** **U-DIG NO.**	**HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Boring # **Interval:** **Type**

N/A

BOREHOLE SUMMARY

Borehole # C7170 Tubing (2 5/8) @ 79 to 96.2 ft bgs; S.U. 2.1

Borehole # — Tubing ( ) @ to ft bgs; S.U. —

Borehole # — Tubing ( ) @ to ft bgs; S.U. —

SAMPLING SUMMARY

Sample #	Interval	% Recovery
B206X4	81.5	100%
B206X5	83.5	

TIME	WORK SUMMARY
0530	Safety meeting @ office. Discussed working with new personnel & watch.
0600	Ace @ SMWF building.
0620	@ SX Tank Farm waiting on Prejob.
0645	Prejob - discussed AHA and POD.
0715	Enter SX Tank Farm, rig inspection and maintenance.
0732	C7170 : Push tubing to sample depth 79 to 81.5 FT bgs.
0800	AOP-008 (wind) leave Farm.
0900	Re-enter SX tank farm dress up.
0920	Trip inner tubing out of boring.
0941	Trip in sampler.
1000	Drive sample 81.5 to 83.5 Ft bgs. B206X4 & B206X5 100%
1004	Trip out sampler.
1021	Sample out of boring.
1027	Trip dummy tip to bottom.
1056	Lunch
1130	Drive tubing from 83.5 to 96.2 FT bgs.
1320	Secure site and equipment.

N/A

OPERATOR/LICENSE: LO Amos

PERSONNEL:
Bill Clark - F Rep.
R. Steffler - Support
M. Weddis - RCT

WEATHER: 85° F Sunny / Breezy

DOWNTIME: WIND 1 HR

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: L.O. Amos
TITLE: OPERATOR
SIGNATURE: D.E. Skoglie for

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Daniel E. Skoglie 6/29/09

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C-7191 WELL NUMBER: NA REPORT NUMBER: 48 DATE: Monday 06/29/09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN - 3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 156' pulled, 153' driven

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3'	SW

BORING DEPTH (include sampling depth): 144

START TIME: 05:30
END TIME: 13:00
CONTRACTOR TIME: .5
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: N/A

WEATHER CONDITIONS (373-2716)

Temperature: 89° cloudy

CASING SUMMARY

Drive tip depth (shift start)	C-7191 = 156
Drive tip depth (shift end)	144'
Casing stick up (shift end)	2.3
Drive String Length	146.3

SAMPLE SUMMARY: NA

OPERATOR: Olson
License # 1217
Passey, Weakley, Sharp, Rivera, Clark

TIME		WORK SUMMARY
05:30	05:40	safety meeting at office (subject = joints
05:40	06:30	Travel to C-farm, drop off parts, ace in, travel to SX farm
06:30	07:05	Pre-job at SX farm
07:05	10:00	Dress in, (after taping probe and picking up water) attempt to
—	—	clean out packed soil, clean out .5' of 2' fill with clean out
—	—	tool - exit zone to discuss options
10:00	10:20	Break discuss options, decide to pull 2½" casing to surface
10:20	12:00	Back-pull C-7191 from 156' to 0', contamination on last seven
—	—	joints, survey out.
12:00	12:30	Lunch
12:30	14:30	Re-drove C-7191 from 0' to 153', back pulled to 144',
—	—	survey out.
14:30	15:00	Travel to office, paperwork, time cards
		N/A

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-24-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 6/30/09
PRINT: D.E. Skaglie
SIGNATURE: D.E. Skaglie

Items used - 1 expendable tip

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: # C7170 ~~X~~ DEA	**WELL NUMBER:** N/A	**REPORT NUMBER:** 48	**DATE:** 06/29/09

CONTRACT NUMBER: 36472-02	**START CARD NO:** S27649/A118512 **EXCAVATION PERMIT:** DAN3650	**RIG MODEL/NO:** Hydraulic Hammer Unit BERETTA HHUXL #3 AHA: AHA-09-001 Rev. 1

PURPOSE: Continue sampling activities at #C7170	**REFERENCE:** FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 000	**LOCATION:** SX Tank Farm SW SE Section 12 25E 12N

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 37.0'

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.635"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH *(include sampling depth)*
SAMPLE DEPTH: 113.0' – 115.0'
BORING DEPTH:

START TIME: 0600 Hrs.
END TIME: 1530 Hrs.
CONTRACTOR TIME: ½ Hr.
TOTAL TIME: 9 Hrs.

DOCUMENTED DOWNTIME:

WEATHER CONDITIONS (373-2716)
Temperature: 89 degrees, sunny with winds 5-10 mph

CASING SUMMARY

Drive tip depth (shift start)	#C7170—96.2'
Drive tip depth (shift end)	#C7170—133.0'
Casing stick up (shift end)	#C7170— 2.3'
Drive String Length	#C7170— 135.2'

SAMPLE SUMMARY
B206x6 (SHOE)
B206x7 (LINERS)

OPERATOR: Walkup
License #3005
Clark, Passey, Weakley, Widdis, Ehrgott, Rivera, MINCEY, ROSANE, RUST, SHARP

TIME		WORK SUMMARY
0500	0530	SAFETY MEETING AT OFFICE. TOPIC: WARMING UP BEFORE
—	—	STARTING WORK ACTIVITIES.
0530	0620	TRAVELED TO SMURF AND ACED FOR "SX" FARM.
0620	0700	STANDBY FOR HPT'S.
0700	0710	PRE-JOB AT "SX" FARM.
0710	0735	DRESS AND ENTER FARM. FUEL AND INSPECT RIG. NO PROBLEMS
—	—	NOTED.
0735	1014	DRIVE DUAL WALL WITH DUMMY TIP FROM 96.2' BGS TO NEXT
—	—	SAMPLE INTERVAL AT 113.0' BGS. PULLED DUMMY TIP.
—	—	STOPPED 2 TIMES FOR ~½ HR. TO LET CROSSOVER SUB. AND
—	—	DRIVEHEAD COOL.
1014	1120	RUN INNER STRING AND SAMPLER IN. DROVE SAMPLE FROM
—	—	113.0' BGS TO 115.0' BGS AT 1032 HRS. AND RETRIEVED. 100%
—	—	RECOVERY. SAMPLE #'S B206x6 (SHOE) B206x7 (LINERS)

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06/29/09
PRINT: MIKEL WALKUP
SIGNATURE: [signature]

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 6/30/09
PRINT: D. E. Skoglie
SIGNATURE: D. E. Skoglie

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

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Date	Well No.	Continuation of Report No.
06/29/09	#C7170	48

DESCRIPTION OF OPERATIONS/REMARKS

1130 - 1150	LUNCH.
1150 - 1415	DRESS AND ENTER FARM. RUN INNER STRING AND DUMMY TIP.
—	DRIVE DUAL WALL FROM 115.0' BGS TO 3RD SAMPLE INTERVAL
—	AT 133.0' BGS. PULLED INNER STRING AND DUMMY TIP.
1415 - 1456	RAN INNER STRING AND SAMPLER IN HOLE. DID NOT DRIVE
1456 —	SAMPLE. SECURED SITE AND EXITED FARM.
1456 - 1530	TRAVELED TO OFFICE. COMPLETED TIMECARD.

N/A

Report By	MIKE A WALKER	Reviewed By	D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	6/30/09
Signature		Signature			

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C-7191 C-7170 WELL NUMBER: NA REPORT NUMBER: 49 DATE: Tuesday 6-30-09

CONTRACT NUMBER: 36472-02

START CARD NO: S27649/A118512

EXCAVATION PERMIT: DAN - 3650

RIG MODEL/NO: Hydraulic Hammer Unit CAT HHU #2

AHA: AHA-09-001 Rev. 1

PURPOSE: Probe installation

REFERENCE: FSWO-DOW-027 Rev.0

RWP: CO-511 Rev. 0

LOCATION: SX Tank Farm SW SE Section 12 25E 12N (Cooper and 13th)

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 144' pulled

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5"	1.75"	CS	2.875"	2.3"	S.W.

BORING DEPTH (include sampling depth): N/A

START TIME: 05:30
END TIME: 15:00
CONTRACTOR TIME: .5 hr
TOTAL TIME: 9 hr

DOCUMENTED DOWNTIME: 1 hr for wind

WEATHER CONDITIONS (373-2716)

Temperature: 92° sunny

CASING SUMMARY

Drive tip depth (shift start)	C-7191 = 144'
Drive tip depth (shift end)	0'
Casing stick up (shift end)	/
Drive String Length	/

SAMPLE SUMMARY: N/A

OPERATOR: Olson
License # 1217
Clark, Sharp, Passey, Rivera, Wittus, Walker, Ehrgott, Weakley

TIME		WORK SUMMARY
05:30	05:45	safety meeting at office (subject = edible insects)
05:45	06:20	Fuel pick-up, travel to SX farm
06:20	06:40	Pre-job at SX farm
06:40	07:40	Tape up probes, move materials into farm while stand by for wind
07:40	09:30	Knock out expendable tip, back-pull to 134', set moisture
—	—	probe from 142' to 140' (sand from 145' to 135') added saline solution,
—	—	back-pull C-7191 from 134' to 100'
09:30	10:00	Break, let casing dry prior to adding bentonite
10:00	11:30	Dress in, Back pull from 100 to 84', set second probe
—	—	from 96' to 94' (sand 99' to 89') added saline solution, back pulled
—	—	from 84' to 56', survey out.
11:30	12:00	Lunch
12:00	14:30	Enter farm, back-pull from 56' to 0', Move to C-7170
14:30	15:00	Travel to office, Time cards, paperwork

REPORT BY:
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06-30-09
PRINT: Kelly Olson
SIGNATURE: Kelly Olson

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 07/01/09
PRINT: D.E. Skoglie
SIGNATURE: Dan E Skoglie

Items used - 1 - 150' Probe
1 - 100 Probe
1 - Expendable tip
3 - 2½" x 4' rods (lost to contamination)

ENERGYSOLUTIONS

Energy Solutions Inc. Western Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: # C7170A DES 7/01/09	**WELL NUMBER:** N/A	**REPORT NUMBER:** 49	**DATE:** 06/30/09

CONTRACT NUMBER: 36472-02	**START CARD NO:** S27649/A118512 **EXCAVATION PERMIT:** DAN3650	**RIG MODEL/NO:** Hydraulic Hammer Unit BERETTA HHUXL #3 AHA: AHA-09-001 Rev. 1

PURPOSE: Continue sampling activities at #C7170	**REFERENCE:** FSWO-DOW-027 Rev.0 RWP: CO-511 Rev. 000	**LOCATION:** SX Tank Farm SW SE Section 12 25E 12N

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

TUBING SIZE O.D.	TUBING SIZE I.D.	TYPE TUBING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.635"	1.875"	CS	2.875"	2.3'	DWSS

BORING DEPTH *(include sampling depth)*
SAMPLE DEPTH: 133.0' - 135.0'
SAMPLE DEPTH: 150.0' - 152.0'

START TIME: 0600 Hrs.
END TIME: 1530 Hrs.
CONTRACTOR TIME: ½ Hr.
TOTAL TIME: 9 Hrs.

DOCUMENTED DOWNTIME:
45 MINS. - WIND
30 MINS. - HPT'S

WEATHER CONDITIONS (373-2716)
Temperature: 91 degrees, sunny with winds 10-15 mph

CASING SUMMARY

Drive tip depth (shift start)	#C7170—133.0'
Drive tip depth (shift end)	#C7170—152.0'
Casing stick up (shift end)	#C7170— 2.3'
Drive String Length	#C7170— 154.3'

SAMPLE SUMMARY
B206X8 (SHOE) B20H47 (SHOE)
B206X9 (LINERS) B20H48 (LINERS)

OPERATOR: Walkup
License #3005
Clark, Sharp, Weakley, Widdis, Ehrgott, Rivera, Rosane, Rust, TEMPLETON, FRANZ

TIME		*WORK SUMMARY*
0500	0530	SAFETY MEETING AT OFFICE. TOPIC: FOOD SAFETY.
0530	0610	TRAVELED TO "SX" FARM.
0610	0640	STANDBY FOR HPT'S.
0640	0655	PRE-JOB AT "SX".
0655	0715	DRESS AND ENTER FARM. INSPECT EQUIPMENT. NO PROBLEMS NOTED.
0715	0800	STANDBY FOR WIND.
0800	0842	DRIVE SAMPLE FROM 133.0' BGS TO 135.0' BGS AT 0800 HRS
—	—	AND RETRIEVED. 100% RECOVERY. SAMPLE #'S B206X8
—	—	(SHOE) B206X9 (LINERS). Boring C7170A. DES 7/01/09
0842	1107	RAN INNER STRING AND DUMMY TIP. DROVE DUAL WALL FROM
—	—	135.0' BGS TO FINAL SAMPLE INTERVAL AT 150.0' BGS. PULLED
—	—	INNER ROD AND DUMMY TIP. NOTE: STOPPED FOR ~ 20 MINS
—	—	FOR A WATER BREAK.
1107	1340	RAN INNER ROD AND SAMPLER IN HOLE. DROVE SAMPLE FROM

REPORT BY:
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
DATE: 06/30/09
PRINT: MIKE WALKUP
SIGNATURE: [signature]

REVIEWED BY:
TITLE: ES TECHNICAL REVIEWER DATE: 7/01/09
PRINT: D E SKOGLIE
SIGNATURE: [signature]

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

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Date	Well No.	Continuation of Report No.
06/30/09	#C7170	49

DESCRIPTION OF OPERATIONS/REMARKS

—	150.0' BGS TO 152.0' BGS AT 1134 HRS AND RETRIEVED. 100%
—	SAMPLE #'S 820H47 (SHOE) 820H48 (LINERS) EXITED FARM.
1240-1310	LUNCH
1310-	DRESS AND ENTER FARM. MOVE HHLXL AND EQUIPMENT
—	FROM #C7170 TO #C7168 AND SET-UP. SECURED SITE AND
—	EXITED FARM.
	TRAVELED TO OFFICE. COMPLETED TIMECARD.

N/A

Report By	MIKEL WALKER	Reviewed By	D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	7/01/09
Signature	[signature]	Signature	Dale E Skoglie		

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommissioning, Probe installation

SHIFT FOOTAGE: C-7170 - 152' Pulled, C-7169 - 28' pulled **LOCATION:** SX TANK FARM **DATE/RPT #:** 50 Wednesday 7/1/09

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 REV 1 **AHA:** AHA-09-00

GEOPHYSICAL LOGGING **DAN-** 3650 **U-DIG NO.** **HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Boring # **Interval:** **Type**

NA

BOREHOLE SUMMARY END OF SHIFT

start = Borehole # C 7170 Tubing (2 5/8") @ 152' ft bgs; S.U. 2.3'
END = C 7170 " 0' 0'
Borehole # C-7169 Tubing (2.5") @ 160' ft bgs; S.U. 2.3'
End = C-7169 " 132' 2.3'
Borehole # ____ Tubing ( ) @ ____ ft bgs; S.U. ____

SAMPLING SUMMARY

Sample # Interval % Recovery

NA

TIME	WORK SUMMARY
5:30	Safety meeting at office (subject = immolation) travel to sx farm
6:15	Pre-job at sx farm & 1 hr stand-by for RCTS)
7:15	Enter sx farm, inspect rig, back-pull C-7170 from 152' to 0'
~~10:15~~	used 9 sacks bentonite, survey out.
10:15	Break, get equipment from Trailer
10:40	Enter farm move and set up on C-7169, clean-out, 7' of soil above
—	tip, drive out tip. survey out (Pulled from 160' to 148' at C-7169)
12:30	Lunch
13:00	Tape up 150' Probe, get materials for probe installation
13:40	Dress in, back-pull C-7169 from 148' to 132', set
—	moisture probe from 144' to 142', sand from 147' to 137', installed
—	saline solution, survey out
14:30	Travel to office, Time cards, paperwork.
15:00	End of shift

NA

OPERATOR/LICENSE: Olson 1217

PERSONNEL: E.S. Passey SUP-Walkup, WRPS PK-Clark, WRPS OP-Sharp Siedell, Rivera RCTS: Willis, Laurendeau

WEATHER/DOWNTIME: F
92° sunny
1 hr for personell for pre-job

DISCARDED ITEMS:
1 Expendable 2.5" tip
1 150' moisture probe
1 2½" Pulling head

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 / contract = 36472-02

REPORT BY: Kelly Olson
TITLE: TEAM COGNIZANT PERSON
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David Skoglie 7/02/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7168

SHIFT FOOTAGE: 74.3'	**LOCATION:** SX TANK FARM	**DATE/RPT #: 07/01/09 Report #50**
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP: CO-511 Rev. 1** **AHA: 09-001**
GEOPHYSICAL LOGGING	**DAN-** 3650 **U-DIG NO.**	**HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY END OF SHIFT

Borehole # C7168 Tubing (5 1/8) @ 74.3 ft bgs; S.U. 4.0'

Borehole # n/a Tubing ( ) @ ft bgs; S.U. ____

Borehole # n/a Tubing ( ) @ ft bgs; S.U. ____

SAMPLING SUMMARY

Sample #	Interval	% Recovery
N/A	N/A	N/A

TIME	WORK SUMMARY
0500	Paperwork and safety meeting at office. Topic: Immolation.
0530	Traveled to "SX" Farm.
0610	Standby for HPT's.
0710	Pre-job at "SX" Farm.
0725	Dress and enter farm. Fuel and inspect Beretta HHUXL #3. No problems noted.
0805	Drove dual wall with dummy tip from G.S. to 54.0' bgs. Exited farm for water break.
1010	Water and cool down break.
1040	Dress and enter farm. Drove dual wall with dummy tip from 54.0' bgs to 68.0' bgs. Exited farm for lunch.
1225	Lunch.
1305	Dress and enter farm. Drove dual wall with dummy tip from 68.0' bgs to 74.3' bgs. Stopped two times for ~20 minutes to let
-----	drive head and crossover sub. cool. Depth of boring was determined by rod count. 19-4.0' joints, 2.3' take-up joint and tip holder,
-----	with 4.0' of stick-up. Secured site and exited farm.
1440	Traveled to office and completed timecard.
1520	End of shift.

n/a

OPERATOR/LICENSE: Walkup/#3005 **PERSONNEL: Weakley, Ehrgott (ESFS), Clark (FWS), Widdis, Franz (HPT's),Sharp, Rivera (Operators)**	**WEATHER/DOWNTIME: 92 F, sunny** 1 Hr.---HPT's	**DISCARDED ITEMS:** 13----Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472-02

REPORT BY: [signature]	**REVIEWED BY:** DE Skoghie
TITLE : TEAM COGNIZANT PERSON	**TITLE:** ES TECHNICAL REVIEWER
SIGNATURE: [signature]	**SIGNATURE:** David E Skoghie 7/02/09

Duratek

HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 07-01-09 Hour Meter: 68.8 HHU NO. #3 Operator: EHAGOTTI WEAKLEY

DAILY MAINTENANCE/INSPECTION	GOOD	CORECTION NEEDED
1. Clean and Inspect feed rails.	✓	
2. Inspect welds, pins and subs for cracks and/or failure points.	✓	
3. Check drive chain tension by moving the drill forward on the feed to a position ¼ of the feed length from the back. With the drill pressure off (wobble the control lever to release all pressure), the chain should be lightly tensioned (should be able to lift the chain about 6 inches (15 cm). If adjustment is required, use a box end wrench on one end of the adjusting screws and a socket on the end. Tighten (loosen) evenly on both side to achieve the recommended chain tension.	✓	
4. Remove rocks and other debris from inside the feed structure.	✓	
5. Grease the head.	✓	
6. Grease front and rear sprockets by moving drill head to a front or rear location where the grease zerks are in line with the holes in the feed rails. Pump grease until excess flows out around the sprocket.		n/a
7. Clean the cylinder rod , a clean rod extends the seal life.		n/a
8. Check hydraulic hoses for damage and leaks. Replace or repair as needed.	✓	
9. Hydraulic rotary head is secure and operating correctly.	✓	
10. All safety guards are in place (secure) and are functioning as intended. Check fan belts, replace as needed.	✓	
11. All safety labels are legible.	✓	
12. Emergency STOP and switches are in good operating condition.	✓	
13. All lubrication containers are full (lubrication, oils and water).	✓	
14. Fire extinguisher are operational and current on inspection.	✓	
15. Break out wrenches are in good condition and jaws and heels are sharp and holding the pipe properly.	✓	

COMMENTS:

NO UNAUTHORIZED PERSON(S) IN AREA!!!!

HBM5012 HYDRAULIC HAMMER UNIT SPECIFICATION INFORMATION

A rod fed hydraulic cylinder provides the force to retract and extend the drill head. Retracting the cylinder moves the drill head forward on the feed. Extending the cylinder retracts the drill.

The drilling feed force is 320 IBF (147 kilogram force) per 100 psig (6.8 bar) up to a maximum of 8100 IBF (3580 kg-f) at 2500 psig (170 bar). Retraction force out of the hole is 480 IBF (218 kg-f) per 100 psig (6.8 bar) up to a maximum 12,000 IBF (5466 kg-f) at 2500 psig (170 bar). NOTE: DO NOT exceed 2500 psig (170 bar) during retraction of the drill head or bowing of the cylinder may occur.

HCFH feeds are designated by length and application. HBM5012 designates a feed having 5 feet (1.524 m) of total drill head travel. This allows the use of 4 foot (1.219 m) drill pipe.

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation - C-7169/C-7170-A - Decommissioning

SHIFT FOOTAGE: 7169-132'00 / 7170-A - 60'00'	LOCATION: SX TANK FARM	DATE/RPT #: 51 Thursday 7/2/09
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 REV1 AHA: AHA-09-00
GEOPHYSICAL LOGGING	DAN- 3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type: NA

BOREHOLE SUMMARY END OF SHIFT

Borehole # C 7169 Tubing (2.5") @ 132' ft bgs; S.U. 2.3'
End = " " " 0'
Borehole # C-7170A Tubing (2 5/8") @ 60' ft bgs; S.U. 2.3'
End = " " " 0'
Borehole # NA Tubing ( ) @ ft bgs; S.U. NA

SAMPLING SUMMARY

Sample # Interval % Recovery: NA

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = fireworks safety) paperwork
05:45	Travel to SX farm
06:20	Stand-by for work package (tape probe)
07:00	Pre job at SX farm
07:15	Dress into whites, Enter farm, fuel rig and generators, rig inspection,
—	back-pull C-7169 from 132' to 60', install second moisture probe
—	from 74' to 72' (sand from 77' to 67') installed saline solution, survey out.
9:35	Break, let casing dry prior to adding dry bentonite
10:05	Enter farm, back-pull casing at C-7169' from 60' to 0', Lost #12
—	and #9 casing joint from bottom to contamination, move and
—	set up on C-7070-A, survey out.
12:00	Lunch
12:35	Entered Zone Back pulled C-7170-A from 60' to 0'
14:00	used four bags bentonite, survey out
—	Travel to office, paperwork, time cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson #1217 PERSONNEL: E. Sol. = M. Passey Operators = Sharp, Rivera, Siedell RCTS = Wilcox, Lawrenderry, Mikey	WEATHER/DOWNTIME: 95°F .5 hr for work package	DISCARDED ITEMS: 1-100' moisture probe 2-2½" x 4' Rods

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 / contract = 36472-02

REPORT BY: Kelly Olson	REVIEWED BY: D E Skoglie
TITLE: TEAM COGNIZANT PERSON	TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Kelly Olson	SIGNATURE: David E. Skoglie 07/02/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7168

SHIFT FOOTAGE: 25.2'	**LOCATION:** SX TANK FARM	**DATE/RPT #:** 07/02/09 Report #51
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 Rev. 1 **AHA:** 09-001
GEOPHYSICAL LOGGING	**DAN-** 3650 **U-DIG NO.**	**HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY END OF SHIFT

Borehole # C7168 Tubing (2 5/8) @ 99.5 ft bgs; S.U. 2.5'

Borehole # _____ Tubing ( ) @ ft bgs; S.U. _____

Borehole # _____ Tubing ( ) @ ft bgs; S.U. _____

SAMPLING SUMMARY

Sample #	Interval	% Recovery
B206W8	81'-83'	100%
B206W9	81-83'	100%

TIME	WORK SUMMARY
0500	PAPERWORK AND SAFETY MEETING AT OFFICE. TOPIC: FIREWORK SAFETY.
0540	TRAVELED TO "SX" FARM.
0615	STANDBY FOR HPT'S.
0650	STANDBY FOR WORK PACKAGE.
0700	PRE-JOB AT "SX" FARM.
0720	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL #3. NO
—	PROBLEMS NOTED.
0740	DRIVE DUAL WALL WITH DUMMY TIP FROM 74.3' BGS TO FIRST SAMPLE
—	INTERVAL AT 81.0' BGS. PULLED INNER ROD AND DUMMY TIP. CORRECT
—	SAMPLE DEPTH WAS VERIFIED BY USING A TAG TAPE.
0844	RUN INNER ROD AND SAMPLER IN HOLE. DRIVE SAMPLE FROM 81.0' BGS TO
—	83.0' BGS AT 0904 HRS. AND RETRIEVED. 100% RECOVERY. SAMPLE #'S
—	B206W8 AND B206W9. EXITED FARM.
0945	WATER BREAK AND COOL DOWN.
1010	DRESS AND ENTER FARM. RAN INNER STRING AND DUMMY TIP IN HOLE.
—	DROVE DUAL WALL WITH DUMMY TIP FROM 83.0' BGS TO 92.0' BGS.
—	EXITED FARM FOR LUNCH. STOPPED ONE TIME FOR ~25 MINUTES TO LET
—	DRIVE HEAD AND CROSSOVER SUB. COOL.
1200	LUNCH.
1230	DRESS AND ENTER FARM. DRIVE DUAL WITH DUMMY TIP FROM 92.0' BGS
—	TO 99.5' BGS. SECURED SITE FOR THE WEEKEND AND EXITED
—	FARM. STOPPED ONE TIME FOR ~20 MINUTES TO LET DRIVE HEAD
—	AND CROSSOVER SUB. COOL.
1410	TRAVELED TO OFFICE AND COMPLETED TIME CARD.
1500	END OF SHIFT.

OPERATOR/LICENSE: Walkup/#3005 **PERSONNEL:** Weakley, Ehrgott (ESFS), Clark (FWS), Widdis, Franz (HPT's), Sharp, Rivera (Operators), MINCEY - HPT.	**WEATHER/DOWNTIME:** 94 F, sunny 35 MINS. - HPT'S 10 MINS. - WORK PACKAGE	**DISCARDED ITEMS:** 8- LYNCH PINS 1- DOUGHNUT

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472-02

REPORT BY: MIKEL WALKUP	**REVIEWED BY:** D.E. Skoglie
TITLE: TEAM COGNIZANT PERSON	**TITLE:** ES TECHNICAL REVIEWER
SIGNATURE: [signature]	**SIGNATURE:** David E Skoglie 07/02/09

Duratek

HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

EHRGOTT

Date: 07-02-09 Hour Meter: 78.5 HHU NO. _____ Operator: WEAKLEY

DAILY MAINTENANCE/INSPECTION	GOOD	CORECTION NEEDED
1. Clean and Inspect feed rails.	✓	
2. Inspect welds, pins and subs for cracks and/or failure points.	✓	
3. Check drive chain tension by moving the drill forward on the feed to a position ¼ of the feed length from the back. With the drill pressure off (wobble the control lever to release all pressure), the chain should be lightly tensioned (should be able to lift the chain about 6 inches (15 cm). If adjustment is required, use a box end wrench on one end of the adjusting screws and a socket on the end. Tighten (loosen) evenly on both side to achieve the recommended chain tension.		
4. Remove rocks and other debris from inside the feed structure.	✓	
5. Grease the head.	✓	
6. Grease front and rear sprockets by moving drill head to a front or rear location where the grease zerks are in line with the holes in the feed rails. Pump grease until excess flows out around the sprocket.		N/A
7. Clean the cylinder rod , a clean rod extends the seal life.		N/A
8. Check hydraulic hoses for damage and leaks. Replace or repair as needed.	✓	
9. Hydraulic rotary head is secure and operating correctly.	✓	
10. All safety guards are in place (secure) and are functioning as intended. Check fan belts, replace as needed.	✓	
11. All safety labels are legible.	✓	
12. Emergency STOP and switches are in good operating condition.	✓	
13. All lubrication containers are full (lubrication, oils and water).	✓	
14. Fire extinguisher are operational and current on inspection.	✓	
15. Break out wrenches are in good condition and jaws and heels are sharp and holding the pipe properly.	✓	

COMMENTS: _____

NO UNAUTHORIZED PERSON(S) IN AREA!!!!

HBM5012 HYDRAULIC HAMMER UNIT SPECIFICATION INFORMATION

A rod fed hydraulic cylinder provides the force to retract and extend the drill head. Retracting the cylinder moves the drill head forward on the feed. Extending the cylinder retracts the drill.

The drilling feed force is 320 IBF (147 kilogram force) per 100 psig (6.8 bar) up to a maximum of 8100 IBF (3580 kg-f) at 2500 psig (170 bar). Retraction force out of the hole is 480 IBF (218 kg-f) per 100 psig (6.8 bar) up to a maximum 12,000 IBF (5466 kg-f) at 2500 psig (170 bar). NOTE: DO NOT exceed 2500 psig (170 bar) during retraction of the drill head or bowing of the cylinder may occur.

HCFH feeds are designated by length and application. HBM5012 designates a feed having 5 feet (1.524 m) of total drill head travel. This allows the use of 4 foot (1.219 m) drill pipe.

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation

SHIFT FOOTAGE: N/A	LOCATION: SX TANK FARM	DATE/RPT #: 52 Monday 7/6/09
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 REV1 AHA: AHA-09-00
GEOPHYSICAL LOGGING	DAN- 3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type

NA

BOREHOLE SUMMARY END OF SHIFT

Start Borehole # C 7183 Tubing (2.5") @ 153.8 ft bgs; S.U. .5
End " " " " 148' 2.3

Borehole # _____ Tubing ( ) @ ft bgs; S.U. _____

Borehole # _____ Tubing ( ) @ ft bgs; S.U. _____

SAMPLING SUMMARY

Sample # Interval % Recovery

NA

TIME	WORK SUMMARY
05:30	Safety meeting, Paperwork at office (safety subject = Apathy)
06:05	Travel to SX farm
06:40	Stand-by for Apos, high-winds and safety stand-down, Taped probes
09:30	Winds let up, Dress into whites move rig and equipment to
—	C-7183, set up zone and air samplers, back pull from
—	154' to 148', Tag 2' of fill on top of tip, attempt clean-out, material
—	to hard to drive into, survey out.
12:00	Lunch
12:30	stand-by for ~~RCTS~~ RO windy conditions
14:30	Travel to office, paperwork, Time-cards

NA

OPERATOR/LICENSE: Olson #1217

PERSONNEL: E.S. - Passey, Weakley, Operators - Sidell, Rivera RCTS -

WEATHER/DOWNTIME: 82°F Windy, cloudy, showers 4 hr 50 min - for wind

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 / contract = 36472-03

REPORT BY: Kelly Olson

TITLE : TEAM COGNIZANT PERSON

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie 07/07/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling Activities @ C7168

SHIFT FOOTAGE: 16.5' | LOCATION: SX TANK FARM | DATE/RPT #: 7/6/09 #52

START CARD NO. A118512 | DECOMMISSION NO. S27649 | RWP: CO-511 AHA-09-001 Rev 1

GEOPHYSICAL LOGGING | DAN-3650 U-DIG NO. | HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type

N/A

BOREHOLE SUMMARY

Borehole # C7168 Tubing (2 5/8) @99.5 to 116 ft bgs; S.U. 2.3

Borehole # — Tubing ( ) @ to ft bgs; S.U. —

Borehole # — Tubing ( ) @ to ft bgs; S.U. —

SAMPLING SUMMARY

Sample # Interval % Recovery

N/A

TIME	WORK SUMMARY
0530	Paper work, Time Card, Safety topic: Apathey.
0540	Travel to 200 E Area (SMURF) to ACE.
0700	Travel to SX Farm. AOP-008 in EFFECT (WIND).
0730	Pre-job & Safety topics By Bill Clark.
0810	RCT's on Site.
0915	AOP-008 called OFF, Per Bill Clark.
0945	Dress and Enter SX Farm, Warm up, Inspect, check fluids on HHUXL #3
10:00	Replace broken drive bead.
1020	Trip out Inner Rods and Inspect Dummy Tip. Trip IN.
1100	Resume driving DWSS from 99.5 to 106.0 FT bgs.
1200	Exit Farm, take lunch.
1240	Dress and enter Farm. Resume driving DWSS from 106.0 FT bgs.
1420	Shut down activities, secure site, exit Farm.
—	29 rods = 116.0 TAKE up joint = 2.3' bgs = 118.3 - 2.3 = 116.0 FT bgs.
1440	Leaving SX Farm for office.
1500	End of Shift

N/A

OPERATOR/LICENSE: OLSON #1217

PERSONNEL: Ehrgott, Weakley, M. Young - RCT, M. Widdis - RCT, R. Rivera - NCO

WEATHER: 87 F Partly cloudy windy

DOWNTIME: AOP-008 3hr.

DISCARDED ITEMS: 1 - 2 5/8 Drive head, 7 - Lynch Pins, 1 - Nylatron Donut

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Mike Ehrgott

TITLE: Field Technical

SIGNATURE: D.E. Skoglie for

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: D.E. Skoglie 07/07/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation - C-7183

SHIFT FOOTAGE: N/A	LOCATION: SX TANK FARM	DATE/RPT #: 53 7/7/09
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-701 REV1 AHA: AHA-09-00
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring #	Interval:	Type
NA		

BOREHOLE SUMMARY END OF SHIFT

Borehole # C 7183 Tubing (2.5") @ 148' 120' ft bgs; S.U. 2.3'

Borehole # _____ Tubing ( ) @ ft bgs; S.U. _____

Borehole # _____ Tubing ( ) @ ft bgs; S.U. _____

SAMPLING SUMMARY

Sample #	Interval	% Recovery
NA		

TIME	WORK SUMMARY
5:30	Safety meeting at office (subject = dress procedures)
5:45	Travel to SX farm
6:20	Pre-job at SX farm
6:40	Dress into whites, enter farm, fuel and inspect rig, back-pull
—	2.5" casing at C-7183 from 148' to 0', cleared rock dust out of 2'
—	bottom joint, installed new tip - re-drove to 60', survey out.
9:45	Break
10:05	Re-enter zone, Re-drove from 60' to 140', Back Pull at 60', survey out
12:00	Lunch.
12:30	Checked at 'Green Hut' for 160' Probes, return to SX farm,
—	dressed into whites, entered farm, drove C-7183' from 140' to 154',
—	Back pulled to 148', Knocked out expendable tip, back pulled to
—	136' set moisture probe from 148' to 146' sand from
—	151' to 140', back-pulled to 120', survey out
14:25	Travel to office, paperwork and time cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson #1217 PERSONNEL: Pusey Clerk - OPERATORS - Sharp - Rivera RCTs = Widdos, Laureadeco, Young	WEATHER/DOWNTIME: 83° F Partly cloudy - breezy	DISCARDED ITEMS: 1 - 150' moisture probe 2 - expendable Tips 6 - Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 / contract = 36472-02

REPORT BY: Keilly Olson	REVIEWED BY: D.E. Skoglie
TITLE: TEAM COGNIZANT PERSON	TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Kelly Olson	SIGNATURE: David E Skoglie 7/8/09

ENERGYSOLUTIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7168

SHIFT FOOTAGE: 31.0'	**LOCATION:** SX TANK FARM	**DATE/RPT #:** 07/07/09 Report #53
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 Rev. 1 **AHA:** 09-001
GEOPHYSICAL LOGGING	**DAN-** 3650 **U-DIG NO.**	**HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY END OF SHIFT

Borehole # C7168 Tubing (2 5/8) @ 147.0 ft bgs; S.U. 2.3'

Borehole # N/A Tubing ( ) @ ft bgs; S.U. ____

Borehole # N/A Tubing ( ) @ ft bgs; S.U. ____

SAMPLING SUMMARY

Sample #	Interval	% Recovery
B206X0	129'-131'	100%
B206X1	129'-131'	100%
B206X2	145'-147'	100%
B206X3	145'-147'	100%

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE TOPIC: DONNING AND DOFFING PPE.
0540	TRAVEL TO "SX" FARM.
0610	STANDBY FOR HPT'S.
0640	PRE-JOB AT "SX".
0701	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0720	DROVE DUAL WALL WITH DUMMY TIP FROM 116.0' BGS TO 2ND
—	SAMPLE INTERVAL AT 129.0' BGS. EXITED FARM DUE TO LACK OF
—	HPT SUPPORT.
0810	STANDBY FOR HPT.
0840	DRESS AND ENTER FARM. PULL INNER STRING AND DUMMY TIP.
—	TAGGED DEPTH AT 129.0' BGS WITH TAG TAPE.
0911	RAN INNER STRING AND SAMPLER IN. DROVE SAMPLE FROM 129.0' BGS
—	TO 131.0' BGS AT 0936 HRS. AND RETRIEVED. 100% RECOVERY. SAMPLE #'S
—	B206X0 - SHOE AND B206X1 - LINERS
1002	RAN ~~SAM~~ INNER STRING AND DUMMY TIP IN. DROVE DUAL WALL WITH
—	DUMMY TIP FROM 131.0' BGS TO FINAL SAMPLE INTERVAL AT 145.0' BGS
—	EXITED FARM FOR WATER. TAGGED DEPTH AT 145.0' BGS WITH TAG TAPE.
1110	BREAK.
1120	DRESS AND ENTER FARM. PULL INNER ROD AND DUMMY TIP. RUN
—	INNER STRING AND SAMPLER IN. DID NOT DRIVE SAMPLE. EXITED
—	FARM FOR LUNCH.
1220	LUNCH.
1250	DRESS AND ENTER FARM. STANDBY FOR HPT.
1310	DROVE SAMPLE FROM 145.0' BGS TO 147.0' BGS AT 1326 HRS. AND RETRIEVED
—	100% RECOVERY. SAMPLE #'S B206X2 - SHOE AND B206X3 - LINERS.

OPERATOR/LICENSE: Walkup/#3005 **PERSONNEL:** Weakley, Ehrgott (ESFS), Clark (FWS), Widdis, Franz (HPT's), Sharp, Rivera (Operators) YOUNG - HPT. ROSRIVE, RUST - SAMPLERS	**WEATHER/DOWNTIME:** 83 F, partly cloudy ONE HR. - HPT'S	**DISCARDED ITEMS:** 2 - 2.5" BACKPULLING DRIVE HEADS. 5 - LYNCH PINS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472-02

REPORT BY: MIKEL WALKUP	**REVIEWED BY:** D E. SKoglie
TITLE: TEAM COGNIZANT PERSON	**TITLE:** ES TECHNICAL REVIEWER
SIGNATURE: [signature]	**SIGNATURE:** David E. Skoglie 07/08/09

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

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Date	Well No.	Continuation of Report No.
07/07/09	#C7168	53

DESCRIPTION OF OPERATIONS/REMARKS

1405	CLEANED THREADS ON INNER STRING, SECURED SITE AND
—	EXITED FARM.
1430	TRAVELED TO OFFICE AND COMPLETED TIMECARD.
1530	END OF SHIFT.

N/A

Report By	[illegible]	Reviewed By	D.E. Skogl.e		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	07/08/09
Signature	[illegible]	Signature	David E. Skogl.e		

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation - C-7183 / Moisture probe boring installation - C-7185

SHIFT FOOTAGE: ~~N/A~~ 52'	**LOCATION:** SX TANK FARM	**DATE/RPT #:** 54 Wednesday 7/8/09
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	**DAN-3650** **U-DIG NO.**	**HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Boring # **Interval:** **Type**

NA

BOREHOLE SUMMARY

Borehole # C-7183 Tubing (2.5") @ 120' to 0' ft bgs; S.U. —

Borehole # C-7185 Tubing (2.5") @ 0' to 52' ft bgs; S.U. 2.3

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ___

SAMPLING SUMMARY

Sample # Interval % Recovery

NA

TIME	WORK SUMMARY
05:30	Safety meeting at office (topic = Pinch Points)
05:45	Travel to SX farm
06:20	Pre-job at SX farm (standing for all personell)
07:10	Tape up probe, gather sand, water, salt etc
07:40	Enter farm, inspect rig, fuel rig and generators, back-pull
—	C-7183 from 120' to 56', installed 2nd moisture probe from 66'
—	to 64', sand from 69' to 59', added saline solution, survey out.
10:00	Break, let casing dry prior to adding bentonite.
~~10:25~~	Re-enter farm, back-pull C-7183 from 56' to 0' (used 7
—	bags bentonite, Moved Rig, air samplers etc to C-7185
—	set up zone, survey out
12:10	Lunch
12:40	Dress into whites, Drove C-7185 from 0' to 52',
—	Tagged inside of casing found .9' feet of fill, (new type of
—	'O' ring seal used at this location), surveyed out.
14:15	Travel to office, Time cards, paperwork
15:00	End of shift

NA

OPERATOR/LICENSE: Olson 1217

PERSONNEL: Clark, HPTS = Widdus Mincey, & Lavendeau, Young, OPER. = Sharp, Rivera, Siedell

WEATHER/DOWNTIME: 82° F

DISCARDED ITEMS: 1-100' moisture probe

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0

REPORT BY: Kelly Olson

TITLE: Operator

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie 07/09/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommission #C7168 and begin sampling activities at #C7192

SHIFT FOOTAGE: 70.0'	**LOCATION:** SX TANK FARM	**DATE/RPT #:** 07/08/09 Report #54
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY

Borehole # C7168 Tubing (2 5/8) @ 147' to N/A ft bgs; S.U. N/A

Borehole # C7192 Tubing (2 5/8) @ G.S. to 70 ft bgs; S.U. 4.3'

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

SAMPLING SUMMARY

Sample #	Interval	% Recovery
N/A	N/A	N/A

TIME	WORK SUMMARY
0500	PAPERWORK AND SAFETY MEETING AT OFFICE. TOPIC: PINCH POINTS.
0540	TRAVEL TO SMURF AND ACE. TRAVEL TO "SX" FARM.
0615	STANDBY FOR HPT'S.
0645	PRE-JOB AT "SX"
0715	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0834	MOVED HHUXL AND SUPPORT EQUIPMENT TO #C7192 AND SET-UP.
0938	DROVE DUAL AND DUMMY TIP FROM G.S. TO 52.0' BGS. EXITED FARM
—	TO LET DRIVE HEAD AND CROSSOVER SUB. COOL.
1015	LET EQUIPMENT COOL.
1040	DRESS AND ENTER FARM. DROVE DUAL WALL WITH DUMMY TIP FROM
—	52.0' BGS TO 60.0' BGS. STOPPED ONE TIME TO LET TOOLING COOL.
1215	LUNCH.
1245	DRESS AND ENTER FARM. DROVE DUAL WALL WITH DUMMY TIP
—	FROM 60.0' BGS TO 70.0' BGS. STOPPED 2 TIMES TO LET DRIVE
—	HEAD AND CROSSOVER SUB. COOL FOR ~20 MINUTES. SECURED SITE
—	AND EXITED FARM.
1435	TRAVELED TO OFFICE. COMPLETED TIMECARD.
1515	END OF SHIFT.

N/A

OPERATOR/LICENSE: Walkup/#3005
PERSONNEL: Weakley (ESFS), Clark (FWS), Sharp, Rivera (Operators), Widdis, Young (HPT's), FRANZ - HPT

WEATHER/DOWNTIME: 80 F, winds 5-15 mph and sunny
30 MINS. - HPT'S

DISCARDED ITEMS:
1 - 2 5/8" DRIVEHEAD
7 - LYNCH PINS
1 - NYLATRON DONUT

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0 /36472-02

REPORT BY: MIKEL WALKUP
TITLE: STR
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E Skoglie 7/09/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Moisture Probe Boring installation C-7185 / De-commissioning C-7185-A

SHIFT FOOTAGE: 52' pulled 92 drilled	LOCATION: SX TANK FARM	DATE/RPT #: 55 Thursday 7/9/09
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type: NA

BOREHOLE SUMMARY

Borehole # C-7185-A Tubing (2.5") @ 52' to 0' ft bgs; S.U. 0'

Borehole # C-7185 Tubing (2.5") @ 0' to 92 ft bgs; S.U. 2.3

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ____

SAMPLING SUMMARY

Sample # Interval % Recovery: NA

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = Site situations)
05:40	Travel to SX farm
06:10	Pre job at SX farm (20 minutes stand-by for RCTS)
06:45	Dress into whites, Back-pulled C-7185-A from 52' to 0' after
—	conducting rig inspection and fueling, moved west 1.5', set
—	up on C-7185 and drove to 48', survey out.
9:40	Break let head cool, pick up parts.
9:30	Re-enter SX farm, change out drive head, drive from
—	52 to 72', letting head cool twice, survey out.
12:10	Lunch
12:40	Dress into whites, Drove C-7185 from 72' to 92'
—	letting head cool twice. survey out
14:25	Travel to office paperwork, and time cards.
15:00	End of shift
	(Note - very hard area at both locations 24' to 26')
	NA

OPERATOR/LICENSE: Olson 11217 PERSONNEL: Clark, Operators - Rivera, Sharp, Siedell RCTS - Widdus, Young, Laurendeau, Minecy	WEATHER/DOWNTIME: 85° F Sunny 20 mins for RCT	DISCARDED ITEMS: 1 2.5" Drive head 4 Nylatrol washers 12 Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0

REPORT BY: Kelly Olson TITLE: operator SIGNATURE: Kelly Olson	REVIEWED BY: David Shoglin TITLE: ES TECHNICAL REVIEWER SIGNATURE: David E. Shoglin 7/9/09

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ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7192

SHIFT FOOTAGE: 38.3'	LOCATION: SX TANK FARM	DATE/RPT #: 07/09/09 Report #55
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY

Borehole #C7192 Tubing (2 5/8) @ 70' to 108.3 ft bgs; S.U. 2'

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ___

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ___

SAMPLING SUMMARY

Sample #	Interval	% Recovery
820750	100'-102'	
820751	100'-102'	

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: AWARENESS OF WORK SURROUNDINGS.
0530	TRAVEL TO "SX" FARM.
0610	STANDBY FOR HPT'S.
0655	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL #3. NO PROBLEMS
—	NOTED.
0721	DRIVE DUAL WALL WITH DUMMY TIP FROM 70.0' BGS TO 84.0' BGS. EXITED
—	FARM TO LET DRIVE HEAD AND CROSSOVER SUB. COOL.
0900	BREAK, LET EQUIPMENT COOL.
0920	DRESS AND ENTER FARM. DRIVE DUAL WITH DUMMY TIP FROM 84.0' BGS
—	TO 1ST SAMPLE INTERVAL AT 100.0' BGS. DEPTH WAS VERIFIED WITH
—	TAG TAPE. STOPPED TWO TIMES TO LET DRIVE HEAD AND CROSSOVER SUB.
—	COOL FOR ~20 MINUTES. EXITED FARM FOR LUNCH.
1110	LUNCH.
1140	DRESS AND ENTER FARM. PULLED INNER ROD AND DUMMY TIP.
1221	RAN INNER ROD AND SAMPLER IN. DROVE SAMPLE FROM 100.0' BGS TO
—	102.0' BGS AT 1243 HRS. AND RETRIEVED. 100% RECOVERY. SAMPLE #S -
—	~~SAMPL~~ 820750 (SHOE) AND 820751 (LINERS).
1310	RAN INNER ROD AND DUMMY TIP IN HOLE. DROVE DUAL WALL FROM
—	102.0' BGS TO 108.3 FT bgs. SECURED SITE AND EXITED FARM. STOPPED
—	TWO TIMES FOR ~20 MINUTES TO LET DRIVE HEAD AND CROSSOVER SUB.
—	COOL.
1430	TRAVELED TO OFFICE. COMPLETED TIMECARD.
1515	END OF SHIFT.

OPERATOR/LICENSE: Walkup/#3005 **PERSONNEL:** Weakley (ESFS), Clark (FWS), Sharp, Rivera (Operators), Widdis, Young (HPT's), Ehrgott (ESFS) FRANZ - HPT ROSANE, RUST - SAMPLERS	**WEATHER/DOWNTIME:** 85 F, winds 5-10 mph and sunny 45 MINS. - HPT'S	**DISCARDED ITEMS:** 2 - NYLATRON DONUTS 7 - LYNCH PINS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0 /36472-02

REPORT BY: MIKEL WALKUP	**REVIEWED BY:** D. E. Skoglie
TITLE: STR	**TITLE:** ES TECHNICAL REVIEWER
SIGNATURE: [signature]	**SIGNATURE:** [signature] 07/09/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: (stand-by for wind & generator approval)

SHIFT FOOTAGE: N/A	LOCATION: SX TANK FARM	DATE/RPT #: 56 Monday 7/13/09
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type

NA

BOREHOLE SUMMARY

Borehole # N/A Tubing (N/A) @ N/A to N/A ft bgs; S.U. N/A

Borehole # N/A Tubing (N/A) @ N/A to N/A ft bgs; S.U. N/A

Borehole # N/A Tubing (N/A) @ N/A to NA ft bgs; S.U. N/A

SAMPLING SUMMARY

Sample # Interval % Recovery

NA

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = high winds)
05:45	Travel to SX farm, Ace in at Smerf
06:40	stand-by work Package
07:35	Pre-job
08:00	Stand-by for wind and air samplers, had well tags for
—	probes made up at Rigging loft, haul garbage, clean up, Mike
—	Passey worked on HGET at 'Smerf' building
11:30	Lunch
12:00	Continue stand-by for wind and generators for air samplers
~~14:30~~ DEL 7/14/09	Mike Dorsey staked outside locations.
14:30	Travel to office Paperwork, time cards

NA

OPERATOR/LICENSE: Olson / 1217

PERSONNEL: Clark, operators = Sharp Siedell. (RCTs = Widdus, Young, Mincey, Laurendeva)

WEATHER/DOWNTIME: 84° F (Partly sunny, Breezy)

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0

REPORT BY: Kelly Olson

TITLE: operator

SIGNATURE: Kelly Olson

REVIEWED BY: D. E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E Skoglie 7/14/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7192

SHIFT FOOTAGE: -0-	**LOCATION:** SX TANK FARM	**DATE/RPT #:** 07/13/09 Report #56
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY

Borehole # C7192 Tubing (2 5/8) @ 108.3 to N/A ft bgs; S.U. 2'

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ___

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ___

SAMPLING SUMMARY

Sample #	Interval	% Recovery
N/A	N/A	N/A

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: HIGH WINDS.
0540	TRAVELED TO SMURF AND ACE. TRAVELED TO "SX" FARM.
0615	STANDBY, UNABLE TO USE PORTABLE GENERATORS DUE TO UL LISTING.
—	MONDAY MORNING TAILGATE WAS HELD BY W. CLARK-WRPS. ALSO
—	ON STANDBY DUE TO WIND.
0815	DRESSED AND ENTERED FARM. HAD THREE GENERATORS SURVEYED OUT OF
—	FARM FOR UPCOMING INSPECTION. INSPECTED RIG AND SITE. EXITED FARM.
0900	STANDBY FOR GENERATOR INSPECTION AND WIND.
1130	LUNCH.
1200	STANDBY FOR GENERATOR INSPECTION AND WIND. M. DORSEY ONSITE TO
—	MARK BORING #'S C7153, C7155 AND C7157.
1420	TRAVELED TO OFFICE.
1500	COMPLETED PAPERWORK AT OFFICE.
1530	END OF SHIFT.
	N/A

OPERATOR/LICENSE: Walkup/#3005
PERSONNEL: Weakley (ESFS), Clark (FWS), Sharp, Rivera (Operators), Widdis, Young (HPT's), Ehrgott (ESFS)

WEATHER/DOWNTIME: 84 F, winds 15-20, thunderstorms possible in the a.m.
9 HRS. - GENERATORS

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0 /36472-~~02~~ 03 DEL 7/14/09

REPORT BY: MIKEL WALKUP
TITLE: SYR
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E Skoglie 7/14/09

ENERGYSOLUTIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7185 (Probe boring installation) (stand-by for generator approval)

SHIFT FOOTAGE: N/A	LOCATION: SX TANK FARM	DATE/RPT #: 57 Tuesday - 7/14/09
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	DAN-3650 U-DIG NO.	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type

NA

BOREHOLE SUMMARY

Borehole # C-7185 Tubing (2.5") @ 92' to \ ft bgs; S.U. \

Borehole # N/A Tubing (N/A) @ N/A to N/A ft bgs; S.U. N/A

Borehole # N/A Tubing (N/A) @ N/A to N/A ft bgs; S.U. N/A

SAMPLING SUMMARY

Sample # Interval % Recovery

NA

TIME	WORK SUMMARY
05:30	Safety meeting at office (safety topic = Lights on for safety)
05:50	Travel to SX farm
06:25	Pre-job at SX farm (stand-by for RCTS)
07:00	Dress into whites, gather water, concrete mix etc, dig
—	in surface protections at C-7171, C-7177, C-7181, C-7179,
—	C-7169, and C-7183, cemented in monuments. wash up and
—	survey out, while standing by for generators to be approved.
—	Mike Dorsey entered Farm and G.P.S.'s locations, Clean up.
11:30	Lunch
12:00	Continue stand-by for generator approval for air samplers,
14:00	Clean-up, tape up probes, fuel pick-up
15	Travel to office, paperwork, time cards
15:00	End of shift.

NA

OPERATOR/LICENSE: Olson / 1217 PERSONNEL: Clerk, Operators/Sharp.. Rivera - Siedell + RCTS = Weddus, Young, Mincey, Lavendra	WEATHER/DOWNTIME: 91° F 9 hr downtime for generator approval	DISCARDED ITEMS: 6 Protective casing

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0

REPORT BY: Kelly Olson	REVIEWED BY: D. E. Skoglie
TITLE: operator	TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Kelly Ol	SIGNATURE: David E. Skoglie 7/15/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7192

SHIFT FOOTAGE: -0-	**LOCATION:** SX TANK FARM	**DATE/RPT #:** 07/14/09 Report #57
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 AHA-09-001 Rev 1
GEOPHYSICAL LOGGING	**DAN-3650** **U-DIG NO.**	**HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY

Borehole # C7192 Tubing (2 5/8) @ 0.83 to N/A ft bgs; S.U. 2.0'

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

SAMPLING SUMMARY

Sample #	Interval	% Recovery
N/A	N/A	N/A

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: LIGHTS ON FOR SAFETY.
0540	TRAVELED TO "SX" FARM.
0615	STANDBY FOR DECISION ON GENERATORS. M. DORSEY ONSITE TO GPS
—	LOCATIONS OF BORINGS. H. SYDNOR AND R. ZANE ONSITE TO CHECK SAFETY
—	OF NEW BORING #C7153 AND #C7155.
1130	LUNCH.
1200	STANDBY FOR DECISION ON GENERATORS.
1350	TRAVEL TO OFFICE. COMPLETE TIMECARD.
1515	END OF SHIFT.

N/A

OPERATOR/LICENSE: Walkup/#3005
PERSONNEL: Weakley (ESFS), Clark (FWS), Sharp, Rivera (Operators), Widdis, Young (HPT's), Ehrgott (ESFS)

WEATHER/DOWNTIME: 91F, winds 5-15 mph
9 HRS. - GENERATORS

DISCARDED ITEMS:
NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0 /36472-~~02~~ 03 DED 7/15/09

REPORT BY: MIKEL WALKUP
TITLE: S.T.R.
SIGNATURE: [signature]

REVIEWED BY: D.E. SKoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie 7/15/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7185 (stand-by for approved generators) **DATE:** 7/15/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 58

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY **SITE/EQUIPMENT INSPECTION:** Yes No *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

Sample #'s *Interval* *%*

1. NA
2.
3.
4.

BOREHOLE SUMMARY

Borehole # C-7185 *Tubing (* 2.5" *) @* 92' *to* \ *ft bgs; S.U.* \

Borehole # N/A *Tubing (* \ *) @* \ *to* \ *ft bgs; S.U.* \

Borehole # N/A *Tubing (* \ *) @* \ *to* \ *ft bgs; S.U.* \

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. NA
2.
3.

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = working with other craft)
05:45	Travel to SX farm
06:20	Pre-job at SX farm (stand-by for approved generator)
—	Pick up generator at 'Smerf' building
8:30	Meeting with crew, Harold Sydnor, tank farm RCTs + operators, decided against
—	moving rig #2 outside farm, Entered farm and installed
—	tags on probe borings for depths and I.D., while stand-by
—	for generator.
12:00	Lunch
12:30	Continue stand-by for approved generator, clean up,
—	inventory parts
14:30	Travel to office, paperwork, time cards
15:00	End of Shift

NA

OPERATOR/LICENSE: Olson / 1217
ES SUPPORT: Weakley
NCO: Rivera, Siedell, Sharp
HPT: Widdus
FWS: Clark

WEATHER: F 98° Sunny

DOWNTIME: 9 hr for approved generators.

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E Skoglie **DATE:** 7/16/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7192 | **DATE:** 07/15/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 58

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: *Yes* (No) | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

BOREHOLE SUMMARY

Borehole # C7192 *Tubing (* 2 1/8 *) @* 108.3' *to* N/A *ft bgs; S.U.* 2.0'

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: WORKING WITH THE CRAFTS.
0540	TRAVEL TO "SX" FARM.
0610	STANDBY FOR GENERATOR USE APPROVAL.
1130	LUNCH.
1200	STANDBY FOR GENERATOR USE APPROVAL.
1215	TRAVELED TO ENW AND PUT A COAT OF WATER SEAL ON TRAILER DECK.
1300	TRAVELED TO OFFICE. COMPLETED TIMECARD.
1430	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Rivera, Sharp, Seidel
HPT: Widdis, Young, Mincey
FWS: Clark

WEATHER: 95 F, sunny

DOWNTIME: 9 HRS. - GENERATOR

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WEAKLEY
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D. E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 7/16/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7185 (stand-by for approved generators) **DATE:** 7/16/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 59

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: Yes (No) HHU CASE#1 (HHU CAT #2) HHUXL#3

BOREHOLE SUMMARY

Borehole # C-7185 Tubing (2.5") @ 92' to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	safety meeting at office (subject = healthy eating)
05:50	Travel to SX farm
6:35	Pre-job at SX farm, Stand-by for approved generators.
—	Inventory casing at 'Smerf' yard, work on cleaning and
—	re-fitting drive tips for 2½" system while standing-by.
12:00	Lunch
12:30	Continue stand-by for generators, pick up probes at
—	'Green Hut', continue work on tips while stand-by
14:00	Travel to office, paperwork time cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson -1217
ES SUPPORT: Weakley
NCO: Rivera, Siegel
HPT: Widdus, Mincey, Laurendeau, Young
FWS: Clark

WEATHER: 102 F Sunny

DOWNTIME: 9 hr. for approved generators

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Ol

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 7/17/09

ENERGYSOLUTIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7192 | **DATE:** 07/16/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 59

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY | **SITE/EQUIPMENT INSPECTION:** *Yes* (No) | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

Sample #'s *Interval* *%*

1.
2. N/A
3.
4.

BOREHOLE SUMMARY

Borehole # C7192 *Tubing* (2 5/8) @ 108.3' *to* *ft bgs; S.U.* ____

Borehole # n/a *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

Borehole # n/a *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. N/A
2.
3.

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: EATING CORRECTLY.
0545	TRAVELED TO "SX" FARM.
0620	STANDBY FOR GENERATOR USE APPROVAL. INVENTORIED WELL CASING
—	AT SMURF LAYDOWN YARD PER H. SYDNOR. CLEANED AND PREPARED
—	SEVEN TIP HOLDERS FOR USE.
1200	LUNCH
1230	STANDBY FOR GENERATOR USE APPROVAL. TRAVELED TO ENW AND
—	PUT 2ND COAT OF WATER SEALANT ON DECK OF TRAILER. TRAVELED
—	TO KENNEWICK AND WASHED PICK-UP. TRAVELED TO OFFICE. COMPLETED
—	TIMECARD.
1500	END OF SHIFT.

N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Rivera, Sharp, SEIDEL
HPT: Widdis, Young, Mincey
FWS: Clark

WEATHER: 98 F, sunny

DOWNTIME: 9 HRS - GENERATOR

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP #3005
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mikel Walkup

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 07/17/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7185 (stand by for generator approval) **DATE:** 7/17/09

LOCATION: Hanford Site. SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 60

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA-09-001 Rev 1**

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: *Yes* *No* *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

BOREHOLE SUMMARY

Borehole # C-7185 *Tubing* (2.5") @ 92' *to* *ft bgs; S.U.* ____

Borehole # ____ *Tubing* ( ) @ N/A *to* *ft bgs; S.U.* ____

Borehole # ____ *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = construction falls)
05:50	Travel to SX farm
06:25	Pre-job at SX Trailer, Tape up moisture probes, check
—	screen hut for supplies, work on tips and curved corners
—	on hour meter brackets while standing by for
—	final approval on generators
11:30	Lunch
12:00	Stand-by for generator approval continued, (Problem with electrician
—	signing off inspection forms), Enter farm, measure distance to
—	outside outlets from C-7185 (approximately 330'), hoping to be
—	able to use two outside outlets and one generator, survey out
13:30	Travel to office, paperwork and time cards
14:00	End of shift
	NA

OPERATOR/LICENSE: Olson 1217
ES SUPPORT: Passey
NCO: Siedell
HPT:
FWS: Clack

WEATHER: 102 F Sunny

DOWNTIME: 8 hrs for generator approval

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Ol

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 7/20/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: CONTINUE SAMPLING ACTIVITIES @ C7192 DATE: 7/17/09

LOCATION: Hanford Site, SX Tank Farm EXCAVATION: DAN-3650 U-DIG #: 9061396 REPORT #: 60

START CARD NO. A118512 DECOMMISSION NO. S27649 RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY — SITE/EQUIPMENT INSPECTION: Yes No — HHU CASE#1 HHU CAT #2 (HHUXL#3)

Sample #'s	Interval	%
1.		
2.	N/A	
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7192 Tubing (2 5/8) @ 108.3' to ft bgs: S.U. ____

Borehole # N/A Tubing ( ) @ to ft bgs: S.U. ____

Borehole # N/A Tubing ( ) @ to ft bgs: S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.		
2.	N/A	
3.		

TIME	WORK SUMMARY
0530	SAFETY MEETING AT OFFICE TOPICS: HEAT STRESS, FALL PROTECTION
0540	TRAVEL TO SX-FARM.
0615	ARRIVED ON SITE, STANDBY FOR GENERATOR APPROVEL.
0715	TAKE UP ~~TWO~~ ME PROBES ~~(100' TO 147')~~ SEARCH 100' AND SEARCH 150'
0745	R. ZANE ON SITE
0900	B. CLARK ON SITE, WORK PACKAGE NOT RELEASED, ELECTRICIANS
—	SCH. TO START INSPECTIONS OF GENERATORS TODAY.
0930	R. ZANE OFF SITE
1100	LUNCH
1230	BILL CLARK ON SITE WITH WORK PACKAGE
1245	DRESS OUT AND ENTER FARM. CHECK DISTANCE BETWEEN
—	AIR SAMPLER, RIG, PLUG-IN SOURCE.
1315	EXIT FARM
1320	B. CLARK OFF SITE. ELECTRICIANS WERE NO SHOW.
1330	~~END~~ SECURE SITE, LEAVING FOR OFFICE.
1400	END OF SHIFT.

NOT USED

OPERATOR/LICENSE: OLSON #1217
ES SUPPORT: EHRBOTT, WEAKLEY
NCO: G. SEIDEL
HPT:
FWS: B. CLARK

WEATHER: F 100 + °
PARTLY CLOUDY
DOWNTIME: 9 HRS
WAITING FOR GENERATORS

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE EHRBOTT
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Mike Ehrbott

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie DATE: 7/20/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7185 (probe boring installation) **DATE:** 7/20/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 61

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY **SITE/EQUIPMENT INSPECTION:** Yes No **HHU CASE#1** ~~HHU CAT #2~~ **HHUXL#3**

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7185 Tubing (2.5") @ 92' to 120' ft bgs; S.U. 2.2

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = staying focused)
05:45	Travel to 'Smart' bldg., acc in, travel to SX Farm
06:35	Pre-Job, stand-by for approved generators, moved De-Wault
—	generator into farm for HHU #2, questions arose
—	concerning grounding and labeling, inspected rig, exited
—	farm, re-enter farm and pull out generator brought
—	by operations (no U.L. sticker) survey out generator.
11:30	Lunch
12:00	continue stand-by for generators, study for Oregon exam
13:15	Electricians deliver 3 approved generators, dress into whites,
—	move generators into farm, set up air sampler, drive hole
—	C-7185 from 92' to 120', survey out.
14:30	Travel to office, paperwork, time cards.
15:01	End of shift

NA

OPERATOR/LICENSE: Olson -1217
ES SUPPORT: Pusey
NCO: Sharp
HPT: Young-Widdus, Lavendave
FWS: clerk

WEATHER: 96°F Sunny

DOWNTIME: 2 hr for generators

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E Skoglie **DATE:** 7/21/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7192 | **DATE:** 07/20/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 61

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev.1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: *Yes* (No) | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

BOREHOLE SUMMARY

Borehole # C7192 *Tubing* (2 3/8) @ 108.3' *to* N/A *ft bgs; S.U.* 2.0'

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: REMAINING FOCUSED ON JOB.
0545	TRAVEL TO SMURF AND ACE. TRAVEL TO "SX" FARM.
0630	STANDBY FOR GENERATOR USE APPROVAL. TOOK ONE GENERATOR TO
—	MO285 FOR ELECTRICIANS TO INSPECT AT 0827 HRS. ELECTRICIANS
—	ONSITE TO START HAULING REMAINING SIX GENERATORS TO THEIR
—	FACILITY TO PERFORM INSPECTIONS.
1130	LUNCH.
1200	STANDBY FOR GENERATOR INSPECTIONS.
1230	TRAVELED ENW. INSTALLED RAMP COVERS ON TRAILER.
1405	TRAVELED TO OFFICE. COMPLETED TIMECARD.
1515	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Rivera, Sharp
HPT: Widdis, Young
FWS: Clark

WEATHER: 96F, sunny and winds 5-10mph

DOWNTIME: 9 HRS. - GENERATORS

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mikel Walkup

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 07/21/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7185 (Probe boring installation) **DATE:** 7/21/09

LOCATION: Hanford Site. SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 62

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA-09-001 Rev 1**

SAMPLING SUMMARY

Sample #'s *Interval* *%*

1. NA
2.
3.
4.

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) *HHUXL#3*

BOREHOLE SUMMARY

Borehole # C-7185 *Tubing (* 2.5" *)@* 120' *to* 156 *ft bgs; S.U.* 2.3

Borehole # N/A *Tubing (* \ *)@* \ *to* \ *ft bgs; S.U.* \

Borehole # N/A *Tubing (* \ *)@* \ *to* \ *ft bgs; S.U.* \

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. NA
2.
3.

TIME	WORK SUMMARY
05:30	Safety meeting at office - (subject = trailer ramps)
05:45	travel to SX farm
06:20	Pre-job at SX farm
07:00	Dress into whites, enter farm, fuel and inspect rig, fuel
—	generators, drive C-7185 from 120' to refusal - 156', checked inside
—	pod, 2' fill, tag = 156.3 at shoulder, total string = 158.3" (39 Joints
—	and bottom assembly, survey out
08:30	Break
08:45	Per - Harold Sydnor request, shut down HHU #2, moved
—	approved generators to HHUXL and continued sample activities
—	at C-7192 (HHU #2 stand-by for approved generators)
11:30	Lunch
12:00	Pick up camera for support for HHUXL work at office,
—	return to site, clean-up in horse trailer, continue
—	stand-by for approved generators, also 50/50 for
—	heat regiment @ 12:00 and 15/45 at 13:00,
14:00	Travel to office, paperwork, time cards
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson - 1217
ES SUPPORT: Passey
NCO: Siedell
HPT: Young - Widdus
FWS: Clark

WEATHER: 100° F sunny

DOWNTIME: 6 hr for generators

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 07/22/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7192		**DATE:** 07/21/09
LOCATION: Hanford Site, SX Tank Farm	**EXCAVATION:** DAN-3650 **U-DIG #:** 9061396	**REPORT #:** 62

START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 **AHA**-09-001 Rev 1
SAMPLING SUMMARY	**SITE/EQUIPMENT INSPECTION:** Yes No	*HHU CASE#1* *HHU CAT #2* *HHUXL#3*

Sample #'s	*Interval*	*%*
1.	N/A	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7192 *Tubing* (2 5/8) *@* 108.3' *to* 117.7 *ft bgs; S.U.* 2.3'

Borehole # N/A *Tubing* ( ) *@* *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing* ( ) *@* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	*Interval*	*Type*
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: RAMPS ON TRAILER.
0540	TRAVELED TO "SX" FARM.
0610	STANDBY FOR GENERATOR INSPECTIONS. TAILGATE SAFETY MEETING WAS
—	HELD BY W. CLARK, WRPS AT 0645 HRS. PER H. SYDNOR AT 0842 HRS.
—	BECAUSE OF LACK OF GENERATORS SHUT DOWN CAT HHU #2 AND CONTINUE
—	DRIVING WITH BERETTA HHUXL #3 AT #C7192.
0854	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL #3. NO PROBLEMS NOTED
—	MOVED GENERATORS FROM #C7185 TO #C7192.
0932	DROVE DUAL WALL WITH DUMMY TIP FROM 108.3' BGS TO 116.0' BGS
—	IH ONSITE MONITORING WITH WET BULB. PLACED ON 45 MINS. WORK 15
—	MINUTES REST. STOPPED 2 TIMES FOR ~15 MINUTES TO LET DRIVE HEAD
—	AND CROSSOVER SUB. COOL. WORK/REST WAS IMPLEMENTED AT 1050 HRS.
1045	DROVE DUAL WALL WITH DUMMY TIP FROM 116.0' BGS TO 117.7' BGS.
—	PIPE STARTING VIBRATING. MORE THAN NORMAL. AFTER LUNCH PIPE WILL
—	BE BACKPULLED A FEW INCHES TO CHECK IF IS BROKEN. EXITED
—	FARM FOR LUNCH.
1200	LUNCH
1230	DRESSED AND ENTERED FARM. PLACED ON 50/50 WORK
—	REGIMN BY IH-TECH. BACKPULLED PIPE ~2", IT HAS SEPARATED.
1300	PLACED ON 25/75 WORK REGIMN BY IH TECH. BACKPULLED INNER.
—	ROD. SECURED SITE AND EXITED FARM.
1350	TRAVELED TO OFFICE. COMPLETED TIMECARD.
1500	END OF SHIFT.
—	N/A

OPERATOR/LICENSE: #3005 *ES SUPPORT: Walkup, Weakley, Ehrgott* *NCO: Sharp*, SEIDEL *HPT: Widdis, Young* *FWS: Clark*	**WEATHER:** 101 F, sunny and hot **DOWNTIME:** 3 HRS. - GENERATORS	**DISCARDED ITEMS:** NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP	**REVIEWED BY:** D.E. Skoglie
TITLE : *ES TECHNICAL PREPARER*	**TITLE:** *ES TECHNICAL REVIEWER*
SIGNATURE: [signature]	**SIGNATURE:** David E. Skoglie DATE: 07/22/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7168 (Decommissioning) DATE: 7/22/09

LOCATION: Hanford Site, SX Tank Farm EXCAVATION: DAN-3650 U-DIG #: 9061396 REPORT #: 63

START CARD NO. A118512 DECOMMISSION NO. S27649 RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7168 Tubing (2 5/8") @ 147' to \ ft bgs; S.U. \

Borehole # N/A Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # N/A Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = Electrical cord inspections)
05:45	Travel to SX farm
06:20	Pre-job at SX farm (stand-by for package)
08:30	Dress into whites, move rig and equipment from C-7185
	to C-7168, set up rig and zone, survey out.
10:00	Stand-by for generators to run second rig.
—	Clean-up, put away and cover material.
11:30	Lunch
12:00	Continue stand-by for generators, move 2 5/8" pipe
—	into form, Button up site at C-7168 (50/50
—	work regiment at 12:00 due to heat.) (75/25 at 13:30)
13:15	Electricians deliver four generators, Place in location
—	for work Thursday, fuel and inspect generators.
13:45	Stand-by for Heat (75% off 25% on).
14:00	Travel to office, paperwork and time cards
15:00	End of Shift
	NA

OPERATOR/LICENSE: Olson - 1217
ES SUPPORT: Passey
NCO: Sharp - Siddell
HPT: Young - Widdus.
FWS: Clark

WEATHER: 103°F sunny - Hot

DOWNTIME:
2 hr for work package
2.75 hr for generators

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D. E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Donald E Skoglie DATE: 7/23/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommission #C7192A & drive #C7192 to sample depth | **DATE:** 07/22/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 63

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY | **SITE/EQUIPMENT INSPECTION:** (Yes) No | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

Sample #'s	Interval	%
1.		
2.	N/A	
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7192A *Tubing* (17.7') @ N/A *to* N/A *ft bgs; S.U.* N/A

Borehole # C7192 *Tubing* (2 5/8") @ GS *to* 59.0 *ft bgs; S.U.* 2.3'

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: ELECTRICAL CORD INSPECTIONS.
0540	TRAVEL TO "SX" FARM.
0615	STANDBY FOR WORK PACKAGE.
0825	PRE-JOB AT "SX" FARM.
0832	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL #3. NO PROBLEMS
—	NOTED.
0859	PER H. SYDNOR-WRPS, SAMPLE BORING # C7192 IS NOW DESIGNATED
—	AS BORING #C7192A. BEGAN DECOMMISSIONING #C7192A. PIPE WAS
—	SEPARATED AT TWO JOINTS DOWN. DECISION WAS MADE TO PUT THE TWO
—	JOINTS BACK IN AND TRY TO LOCATE A FISHING TOOL. DEPTH OF BREAK IS ~7.6' BGS
0932	PER H. SYDNOR-WRPS THE HHUXL #3 WAS MOVED ~2' SOUTH OF BORING
—	#C7192A AND SET UP.
1000	DROVE DUAL WALL WITH DUMMY TIP FROM G.S. TO 40.0' BGS. EXITED
—	FARM FOR LUNCH. Note: HHU hydraulic pressure was decreased.
1135	LUNCH
1205	IH TECH MONITORING WITH BULB. WORK/REST IS 50/50. MOVED
—	MORE 2 3/8" PIPE TO HHUXL #3 WITH FORKLIFT. DROVE DUAL WALL
—	WITH DUMMY TIP FROM 40.0' BGS TO 52.0' BGS. WORK/REST IS NOW 25/75
—	PER IH TECH. SECURED SITE AND EXITED SITE. WILL REMAIN OUT OF FARM
—	DUE TO WORK/REST OF 25/75.
1355	TRAVELED TO OFFICE. COMPLETED TIMECARD AND PAPERWORK.
1500	END OF SHIFT
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, SEIDEL
HPT: Widdis, Young
FWS: Clark

WEATHER: 103 F, sunny and hot

DOWNTIME: 2 HRS @ 10 MINS: - WORK PACKAGE
1 1/2 HRS - WET BULB

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: SAMUEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: [signature] **DATE:** 7/23/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7168 - Decommissioning / C-7167 - Probe installation | DATE: 7-23-09

LOCATION: Hanford Site. SX Tank Farm | EXCAVATION: DAN-3650 U-DIG #: 9061396 | REPORT #: 64

START CARD NO. A118512 | DECOMMISSION NO. S27649 | RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No | HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7168 Tubing (2 5/8") @ 147' to 0' ft bgs; S.U. 1

Borehole # C-7167 Tubing (2 1/2") @ 152' to 88' ft bgs; S.U. 2.3

Borehole # N/A Tubing (/) @ / to / ft bgs; S.U. /

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subjects being prepared)
05:45	Travel to SX farm
06:25	Pre-job at SX farm
06:55	Dress into whites, enter farm, fuel + inspect rig, start
—	air samples, Back pull C-7168 from 147 to 0', Bottom
—	8 joints contaminated (fixed contamination), used 8 sacks
—	bentonite move and set up on C-7167, survey out.
9:30	Break, gather materials for probe
10:00	Dress into whites, Back pull C-7167 from 152' to 148', Knock
—	out tip, back pull to 136', install probe 146' to 144', sand from
—	149' to 139', added saline solution, back-pulled to 120',
—	survey out.
11:45	Lunch NOTE: 8 jts Are set aside for reuse.
12:15	Enter farm back pull C-7167 from 120' to 88',
~~13:25~~	(50/50 at 12:00 but cooled down and went back to 100% work)
13:25	survey out
—	Travel to office, F.A.R. training class, paperwork and
—	time cards
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson / 1217
ES SUPPORT: Passey
NCO: Siedell
HPT:
FWS: Clark

WEATHER: 102°F Sunny

DOWNTIME: NA

DISCARDED ITEMS: 150' Probe 1-2 1/2" expendable tip

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Shuglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Shuglie DATE: 7/23/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drive #C7192 to 2nd sample depth | **DATE:** 07/23/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 64

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: Yes No | *HHU CASE#1* *HHU CAT #2* *HHUXL#3* 95.2

BOREHOLE SUMMARY

Borehole # C7192 *Tubing (* 2 5/8 *) @* 52.0' *to* 128.0' *ft bgs; S.U.* 2.3'

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: BEING PREPARED FOR HEAT.
0545	TRAVEL TO "SX" FARM.
0615	STANDBY FOR HPT'S.
0645	PRE-JOB AT "SX" FARM.
0655	DRESS AND ENTER FARM FUEL AND INSPECT HHUXL #3. NO PROBLEMS
—	NOTED.
0721	DRIVE DUAL WALL WITH DUMMY TIP FROM 52.0' BGS TO 68.0' BGS. EXITED
—	FARM TO LET EQUIPMENT COOL AND WATER.
0830	BREAK.
0845	UNABLE TO ENTER FARM. OPERATOR LEFT WITH FARM KEY.
0910	OPERATOR ONSITE WITH FARM KEY. DRESSED AND ENTERED FARM.
—	DROVE DUAL WALL WITH DUMMY TIP FROM 68.0' BGS TO 108.0' BGS.
—	EXITED FARM FOR LUNCH. NOTE: IH TECH INFORMED US THAT WE
—	ARE ON A 50/50 WORK/REST AT 11:30 HRS.
1200	LUNCH.
1230	DRESSED AND ENTERED FARM. DROVE DUAL WALL WITH DUMMY TIP FROM
—	108.0' BGS TO 2nd SAMPLE INTERVAL 128.0' BGS. EXITED FARM. TAG TAPE
—	WAS USED TO CONFIRM DEPTH.
1330	RETURNED GENERATORS TO ELECTRICIANS.
1410	TRAVELED TO OFFICE. ATTENDED F.A.R. CLASS AND COMPLETED TIMECARD.
1500	END OF SHIFT
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Seidel
HPT: Widdis, Young
FWS: Clark

WEATHER: 104 F, sunny and hot

DOWNTIME:
1/2 HR. - HPT'S
20 MINS. - NO FARM KEY

DISCARDED ITEMS:
10 - LYNCH PINS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David Skoglie **DATE:** 7/23/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7167 - Probe installation, surface protection installation | DATE: 7-24-09

LOCATION: Hanford Site, SX Tank Farm | EXCAVATION: DAN-3650 U-DIG #: 9061396 | REPORT #: 65

START CARD NO. A118512 | DECOMMISSION NO. S27649 | RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No | HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7167 Tubing (2.5") @ 88' to 0 ft bgs; S.U. 0'

Borehole # NA Tubing (/)@ / to / ft bgs; S.U. /

Borehole # N/A Tubing (/)@ / to / ft bgs; S.U. /

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
03:30	Paperwork, check E-mails at office
03:45	Travel to SX farm
04:20	Pre-job at SX-farm (stand-by for daylight) (safety topic = Snakes)
05:05	Fuel generators, gather materials for probe and surface protection
—	installation
05:20	Dress into whites, back-pull C-7167 from 88' to 60'
—	tag bentonite at 90', install bentonite to 75' (TAG), install sand to 72' (TAG)
—	install probe, add sand to 65' (tag) add saline solution, Back-pull
—	2.5" casing to 32', Encounter contamination on #8 (From bottom joint)
—	Exit farm to allow pipe to dry before adding bentonite, survey out
07:30	Break,
07:50	Re-enter farm with NCO support for contaminated casing,
—	inspect rig, Back-pull casing from 32' to 0' Lost four joints
—	#8, #7, #5, and #4 joints from bottom, moved HHU #2 to gate
—	and equipment for survey for outside work, Dug in and
~~10:30~~ 10:00	cemented in surface protection, survey out
10:30	Lunch
11:00	Travel to office, paperwork, time-cards.
12:00	End of shift
	NA

OPERATOR/LICENSE: Olson - 1217
ES SUPPORT: M. Ensgott
NCO: Sharp - Roberts
HPT: Widdus
FWS: Clack

WEATHER: 99° F Sunny

DOWNTIME: .5 hr for darkness

DISCARDED ITEMS:
4-2½" x 4' rods
1-100' Probe
1-sack sand
1-surface protection mix
1-sack concrete mix
6 sacks bentonite

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie DATE: 7/27/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Survey Rig #2 & Equipment out of SX Farm, Probe borings installation C-7153 DATE: 7/27/09

LOCATION: Hanford Site. SX Tank Farm EXCAVATION: DAN-3650 U-DIG #: 9061396 REPORT #: 66

START CARD NO. A118512 DECOMMISSION NO. S27649 RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	NA	
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7153 Tubing (2.5") @ 0 to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7185	153.5-103	SPECTRAL GAMMA
2. NA		
3. NA		

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = shaking off cobwebs)
05:45	Travel to 'Sneef' bldg., Acc in, travel to SX farm
06:30	Pre job at SX farm (stand-by for all personell 6:30-7:00)
07:15	Enter SX farm, inspect rig #2, move rig into RMA
—	for exit survey, Survey out of farm.
08:00	Pick up logging equipment at C-Farm, (survey out of C-Farm) haul
—	equipment to SX farm
09:45	Pickup Men working signs at Energy N.W., return to SX
12:00	farm, RCTS survey out Rig and equipment (stand-by for work package)
12:00	Lunch
12:30	Continue stand-by for work package for outside work, stage
—	equipment, P.N.G spectral gamma logged C-7185 from 153.5 to
—	103', cut new plastic and felt (75% Rest 25% work at 13:45)
14:30	Travel to office, paperwork and time cards.
15:00	END of Shift.
	NA

OPERATOR/LICENSE: Olson-1217
ES SUPPORT: Walkup
NCO: Sharp, Siedell
HPT: Young, Widdus
FWS: Clark P.N.G. Randell

WEATHER: 102 F Sunny

DOWNTIME: 2 hr - work package

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E Skoglie DATE: 7/28/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling at #C7192 | **DATE:** 07/27/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 65

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B20752	128'-130'	100%
2. B20753	128'-130'	100%
3. B20754	140'-142'	100%
4. B20755	140'-142'	100%

SITE/EQUIPMENT INSPECTION: (Yes) No | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

BOREHOLE SUMMARY

Borehole # C7192 *Tubing* (2 5/8") *@* 128.0' *to* 118.0' *ft bgs; S.U.* 4.3'

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: RE-FOCUS ON MONDAY MORNING.
0545	TRAVEL TO SAMURE AND RCE. TRAVEL TO "SX" FARM.
0630	STANDBY FOR HPT'S.
0700	PRE-JOB AT "SX" FARM.
0726	DRESSED AND ENTERED FARM. FUEL AND INSPECT HHUXL #3. NO PROBLEMS
—	NOTED.
0755	PULLED INNER ROD AND DUMMY TIP.
0820	RAN INNER ROD AND SAMPLER IN. DROVE SAMPLE FROM 128.0' BGS
—	TO 130.0' BGS AT 0904 HRS. AND RETRIEVED. 100% RECOVERY.
—	SAMPLE #'S B20752 (SHOE) B20753 (LINERS). EXITED FARM
—	FOR BREAK.
1004	BREAK.
1020	DRESSED AND ENTERED FARM. DROVE DUAL WALL WITH DUMMY TIP FROM
—	130.0' BGS TO TO FINAL SAMPLE INTERVAL AT 140.0' BGS. PULLED
—	INNER ROD AND DUMMY TIP.
1243	RAN INNER ROD AND SAMPLER IN. DROVE SAMPLE FROM 140.0' BGS
—	TO 142.0' BGS AT 1203 HRS AND RETRIEVED. 100% RECOVERY.
—	SAMPLE #'S B20754 (SHOE) B20755 (LINERS) EXITED FARM
1255	LUNCH.
1325	INFORMED BY IH TECH WORK/REST IS 50/50. DRESSED AND ENTERED
—	FARM. BACK-PULLED 2 5/8" CASING FROM 142.0' BGS TO 118' BGS AND
—	DECOMMISSIONED. SECURED SITE AND EXITED FARM.
1425	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1510	END OF SHIFT.

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Seidel, Sharp, ~~Rivera~~ ROSANE
HPT: Widdis, Young
FWS: Clark

WEATHER: 100 F, partly cloudy

DOWNTIME: 1/2 HR. - HPT'S

DISCARDED ITEMS:
2 - 4' INNER RODS
1 - INNER ROD LANDING PLATE
1 1/2 - SKS BENTONITE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MINDY WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: [signature] **DATE:** 7/28/09

TANK FARM CONTRACTOR RADIOLOGICAL SURVEY REPORT

RSR No. COO 005808

Page 1 of 3

Date	Start/Stop Time	Area/Location	RWP/Rev.
7/27/09	0700 / 1100	200W/241-SX	N/A

Purpose of Survey

- ☒ Material Release – Confidence Level
  - ☒ 67% 12.23 ☐ 95%
- ☐ RAM Shipment:
- ☐ Required Task:
- ☒ Job Coverage: TFC-WO-09-0945
- ☐ Other:

Description of Work/Comments:

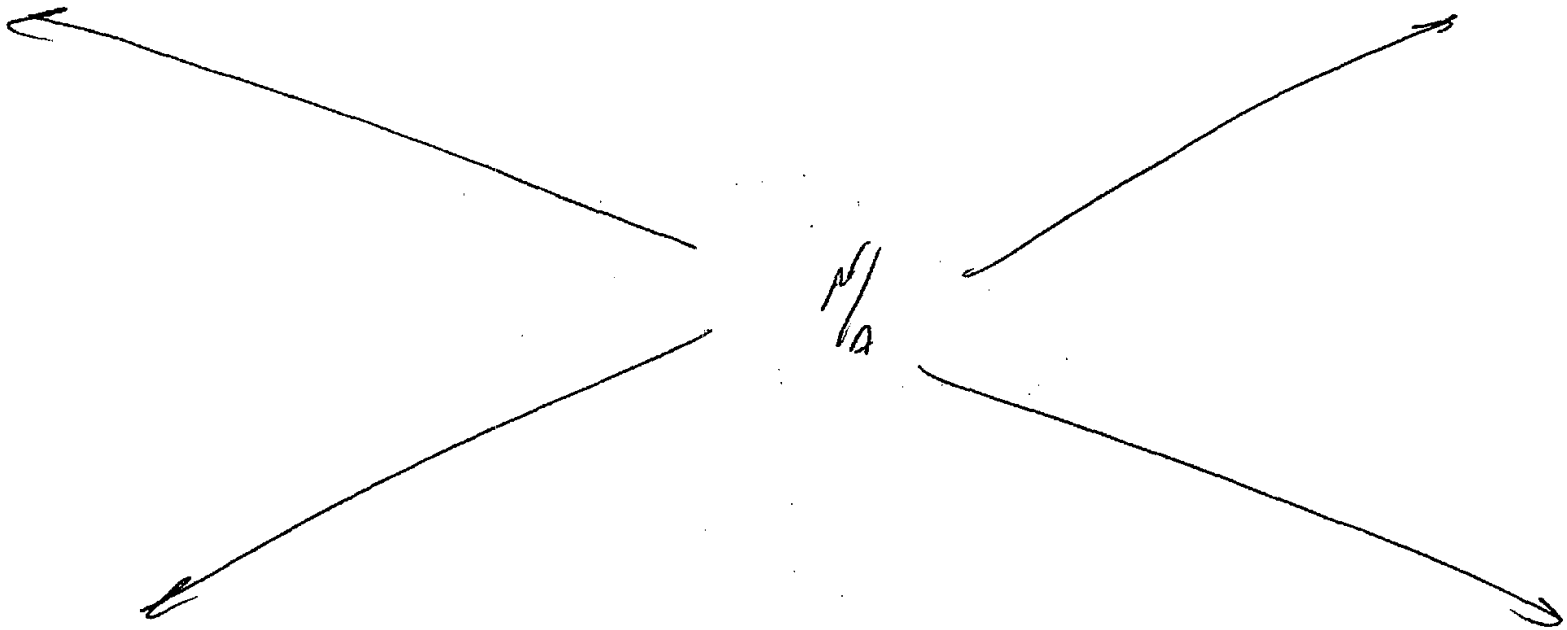
Release survey of the CAT direct push backhoe (HHU Rig #2) per survey plan no. 2009CO-009, Rev. 0. and support equipment. Items 2 thru 11 were areas of concentration.

No.	Description	Dose Rate Measurements								Contamination Measurements							
		Note[1] F = Field (≥30 cm) C = Contact (≤1 cm)								Direct Gross cpm/PA		Background cpm		Total dpm/100 cm²		Removable dpm/100 cm²	
		Dist. (cm) Note[1]	WO mR/hr	WC mR/hr	CF β	CF γ	Neutron Dose mrem/hr	Shallow Dose mrem/hr	Deep Dose mrem/hr	βγ	α	βγ	α	βγ	α	βγ	α
1	LAW and direct survey of accessible areas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50	0	50	0	<5000	<100	<1000	<20
2	Engine Fan and Radiator									50	0	50	0	<5000	<100	<1000	<20
3	Air and Oil Filters									50	0	50	0	<5000	<100	<1000	<20
4	Cab Floor, Seat, Steering Wheel and Levers and Controls									50	0	50	0	<5000	<100	<1000	<20
5	Hydraulic Leveling Pads									50	0	50	0	<5000	<100	<1000	<20
6	Hydraulic Pump Unit and Fill Points									50	0	50	0	<5000	<100	<1000	<20
7	Fluid Fill Caps									50	0	50	0	<5000	<100	<1000	<20
8	Vehicle Undercarriage									50	0	50	0	<5000	<100	<1000	<20
9	Tires and Wheeel Wells									50	0	50	0	<5000	<100	<1000	<20
10	Direct Push Unit									50	0	50	0	<5000	<100	<1000	<20
11	Backhoe									50	0	50	0	<5000	<100	<1000	<20
12	2 Pipe racks									50	N/A	50	N/A	<5000	N/A	<1000	N/A
13	3 Air samplers and carts									50	N/A	50	N/A	<5000	N/A	<1000	N/A
14	Hand tools and tool cart	N/A							N/A	50	N/A	50	N/A	<5000	N/A	<1000	N/A

BD-6003-343 (REV 3)

TANK FARM CONTRACTOR RADIOLOGICAL SURVEY REPORT	RSR No. COO 005808	Page 2 of 3

Map/Sketch



Legend:	# Direct Measurement	Air Sample	Smear	LAW	Neutron	Field Dose Rate * Contact Dose Rate	Note: Dose Rates in mrem/hr unless otherwise noted.
	-------- (designation inside) -------- Radiological Area Boundary						

Instruments

Instrument/Probe Model	RO-20	GM Model g-m Probe	PAM Probe	GM/P-11	N/A	N/A	N/A	N/A
Serial No.	N/A	CMEBC-0058	ACHN2-0240	CMEBB-0189	N/A	N/A	N/A	N/A
		DTHNC-1133	DTHN3-0466	DTHNC-0366	N/A	N/A	N/A	N/A
Efficiency (used)	N/A	0.10	0.14	0.10	N/A	N/A	N/A	N/A

	Air Sample Log Number		Smear Log Number	HPT: Date: 7/27/09	Payroll No: 6B538/ 80442 73488	Initial Review Date & Initials: 07/29/09
						Final Review Date & Payroll No.: 07/29/09 89874
1	N/A	☐ Breathing Zone ☐ General Area	N/A	Name (Print): M.A. WIDDIS/ DLAURENDEAU/ SA Fmz		Name (Print): CHRIS PALMENDEZ
2	N/A	☐ Breathing Zone ☐ General Area	N/A	Signature:		Signature:

BD-6002-343 (REV 3)

TFC RADIOLOGICAL SURVEY REPORT
Dose Rate/Contamination -- Continuation Sheet

RSR No. COO-005808 | Page 3 of 3

No.	Description	Dose Rate Measurements: Note[1] F = Field (≥30 cm) C = Contact (≤1 cm)								Contamination Measurements: Direct Gross cpm/PA		Background cpm		Total dpm/100 cm²		Removable dpm/100 cm²	
		Dist. (cm) Note[1]	WO mR/hr	WC mR/hr	CF β	CF γ	Neutron Dose mrem/hr	Shallow Dose mrem/hr	Deep Dose mrem/hr	βγ	α	βγ	α	βγ	α	βγ	α
15	3 Chairs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50	N/A	50	N/A	<5000	N/A	<1000	N/A
16	Wagon									50		50		<5000		<1000	
17	Rope stations									50		50		<5000		<1000	
18	Fan									50		50		<5000		<1000	
19	Dril bits and pipe caps									50		50		<5000		<1000	
20	Extension cord									50		50		<5000		<1000	
21	Boundary rope									50		50		<5000		N/A	
22	Spill kit									50		50		<5000		<1000	
23	2 Water bottles									50		50		<5000		<1000	
N/A																	N/A
N/A																	N/A

BD-6003-343.1 (REV 3)

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7153 - Probe boring installation		DATE: 7/28/09
LOCATION: Hanford Site, SX Tank Farm	EXCAVATION: DAN-3650 U-DIG #: 9061396	REPORT #: 67
START CARD NO. A118512	DECOMMISSION NO. S27649	RWP: CO-511 AHA-09-001 Rev 1
SAMPLING SUMMARY	SITE/EQUIPMENT INSPECTION: Yes No	HHU CASE#1 HHU CAT #2 HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	NA	
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7153 Tubing (2.5") @ 0' to 72' ft bgs; S.U. 2.3

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7185	103'-43'	SPEC. GAMMA
2. N/A		
3. N/A		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = Rigging), paperwork
05:45	Travel to SX Farm
06:20	Pre-job at SX Farm
07:00	Set up Rig, Zone for Noise protection and inner Zone RBA,
—	air samplers, generators, pipe and equipment
08:30	stand-by for reflective barricades
10:00	Barricades arrive, complete setting up Zone, hang Rad
—	signs (survey additional rope out of SX Farm.
10:45	Drive C-7153 from 0' to 51', Head heated up.
11:45	Lunch.
12:15	Drive hole C-7153 from 51' to 68', head heats up.
~~13:00~~ K.O	Let head cool
13:00	Return to site, drive from 68' to 72' P.N.G. spectral
—	gamma logged from 103' to 43' at C-7185
13:20	Stop work because of wet Bulb (Heat.)
—	Travel to office, paperwork, time cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson, 1217
ES SUPPORT: Walkup - Weakley
NCO: Sharp - Siedell
HPT: Young - Widdus - Davendeva
FWS: Clark P.N.G. - Randall

WEATHER: 102 F sunny

DOWNTIME:
1.5 hr for barricades
1.25 hr for heat

DISCARDED ITEMS:
1- 2.5" Drive Head

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D. E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie DATE: 7/29/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 7-28-09 HHU#: Rig #1 (case) Hour Meter: 3304 Operator Mack Repko

Daily Maintenance Inspection	Good	Correction Needed
1. Clean & inspect feed rails.	✓	
2. Inspect welds, pins and subs for cracks and/or failure points.	✓	
3. Remove rocks and debris from inside the feed structure.	✓	
4. Grease the drive head.	✓	
5. Wipe down the cylinder rod.	✓	
6. Check drive chain tension.	✓	
7. Grease front and rear sprockets.	✓	
8. Check hydraulic hoses for damage and leaks.	✓	
9. Inspect rotary head to ensure it's secure and operating correctly.	✓	
10. Inspect belts and safety guards.	✓	
11. All safety labels are legible.	✓	
12. Emergency STOP and switches are in good operating condition.	✓	
13. Inspect fluid levels.	✓	
14. Fire extinguishers are operational and current on inspection.	✓	
15. Break out wrench and heel and jaws are in good working order.	✓	
16. Visually check hoist. Spool out and inspect rope on hoist.	✓	
17. Check winch for leaks. Clean and grease brake assembly if needed.	✓	
18. Check brakes and back up alarm.	✓	
19. Check tracks, rollers, tires etc.	✓	

COMMENTS: Everything looks good.

NO UNAUTHORIZED PERSON(S) IN HHU AREA !!!!!
HYDRAULIC HAMMER UNIT SPECIFICATION INFORMATION

A rod fed hydraulic cylinder provides the force to retract and extend the drill head. Retracting the cylinder moves the drill head forward on the feed. Extending the cylinder retracts the drill.

The drilling feed force is 320 IBF (147 kilogram force) per 100 psig (6.8 bar) up to a maximum of 8100 IBF (3580 kg-f) at 2500 psig (170 bar) Retraction force out of the hole is 480 IBF (218 kg-f) per 100 psig (6.8 bar) up to a maximum 12,000 IBF (5466 kg-f) at 2500 psig (170 bar). NOTE: Do not exceed 2500 psig (170bar) during retraction of the drill head or bowing of the drill head may occur.

HCFH feeds are designated by length and application. HBM5012 designates a feed having 5 feet (1.524 m) of total drill head travel. This allows the use of 4 foot (1.219 m) drill pipe.

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommissioning of #C7192. Fishing and decommissioning at #C7192A | **DATE:** 07/28/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 66

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: *Yes No* | *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

BOREHOLE SUMMARY

Borehole # C7192 *Tubing (* 2 5/8" *) @* 113.0' *to* GS *ft bgs; S.U.* N/A

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: RIGGING SAFETY.
0510	TRAVEL TO "SX" FARM.
0615	STANDBY FOR HRT'S.
0710	DRESS AND ENTER FARM. BACK PULLED 2 5/8" CASING FROM 113.0' BGS
—	TO G.S. USED 8 - 50LB. SACKS OF BENTONITE. EXITED FARM.
0730	BREAK.
0940	DRESS AND ENTER FARM. MOVED HHUXL #3 FROM C7192 TO C7192A
—	AND SET-UP. RAN TAP IN HOLE. TAP PULLED OUT OF PIPE.
1045	RAN A GRAPPLE IN HOLE. HOOKED PIPE BUT WAS UNABLE TO PULL.
1130	EXITED FARM FOR LUNCH. R. ZADE ONSITE PERFORMING WBGT
—	MONITORING.
1210	DRESSED AND ENTERED FARM. UNABLE TO GET GRAPPLE TO RELEASE.
—	EXITED FARM.
1330	B. CLARK SHUT PROJECT DOWN BECAUSE WBGT WAS READING 89°.
1420	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1520	END OF SHIFT.

N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Seidel, Sharp, Rivera
HPT: Widdis, Young
FWS: Clark

WEATHER: 103F, sunny and hot!

DOWNTIME:
60 MIN. - HRT'S
1 HR. - WBGT

DISCARDED ITEMS:
8 - 50LB. BENTONITE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mikel Walkup

REVIEWED BY: D. E. SKoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 7/29/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Moisture Probe boring. installation DATE: 7/29/09

LOCATION: Hanford Site. SX Tank Farm EXCAVATION: DAN-3650 U-DIG #: 9061396 REPORT #: 68

START CARD NO. A118512 DECOMMISSION NO. S27649 RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7153 Tubing (25") @ 22' to 80' ft bgs; S.U. 2.3'

Borehole # NA Tubing ( ) @ to ft bgs; S.U.

Borehole # NA Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7185	43-0'	Gamma
2. NA		
3. NA		

TIME	WORK SUMMARY
05:30	Safety meeting, stand-by for time card training, time card training Postponed
07:00	Travel to 'Smart' bldg., acc in, travel to SX farm
08:00	Pre-job at SX farm
08:10	Start generators, drive C-7153 from 22' to 80', notice seal
K.O. 09:00	seeping on hammer
09:00	Exit to gather manuel and equipment to replace seal, travel
—	to C-Farm, Pick-up Mike Passey, travel to office, locate
—	parts for repairs in manuel and order parts, travel
—	back to SX farm.
12:30	Lunch
13:00	Moved rig off hole, moved hosing etc. out of way
—	to check Torque on bolts for head on hammer, found
—	bolts less than 150# Torque (317# required) / PNG logged C-7185 43' to 0' (gamma)
14:00	Travel to Energy N.W. to pick up heavier torque
—	wrench, travel to office, paperwork and time cards.
15:00	END OF SHIFT
	NA

OPERATOR/LICENSE: Olson
ES SUPPORT: Weckler - Passey
NCO: Sharp - Stadell, Rivera
HPT: Young - Widdus - Ravendeau
FWS: Clark (PNG - Randall

WEATHER: 100° F

DOWNTIME: 1.5 hr for time card class
6 hr for repairs

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson 11217
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Donald E. Skoglie DATE: 7/30/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Fishing and decommissioning at #C7192A **DATE:** 07/29/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 67

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s *Interval* *%*

1.
2. N/A
3.
4.

SITE/EQUIPMENT INSPECTION: *Yes* *No* *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

BOREHOLE SUMMARY

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.*

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. N/A
2.
3.

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: USE OF MISTERS FOR COOLING.
0530	STANDBY FOR MANDATORY TIMECARD TRAINING.
~~0730~~	~~MANDATORY TIMECARD TRAINING.~~
0700	TRAVEL TO SMURF AND ACE UNDER CO-511 REV. 2 TRAVEL TO "SX" FARM.
0750	DRESS AND ENTER FARM. INSPECT AND FUEL HHUXL. NO PROBLEMS NOTED.
0810	TRY AND REMOVE GRAPPLE. NO LUCK. EXITED FARM FOR BREAK.
1100	BREAK.
1115	LUNCH.
1145	DRESS AND ENTER FARM. UNABLE TO PULL GRAPPLE. PUSHED IT AND
—	TWO RODS TO ~18' BGS. INSERTED 2-2 5/8" RODS TO BREAK AT 8.0'
—	BGS. TAGGED AT 6.0' BGS. SOME FILL WILL HAVE TO BE REMOVED.
—	SECURED SITE AND EXITED FARM.
1410	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1500	END OF SHIFT. NOTE: TOP OF grapple @ 25.5 ft bgs.
	top of attached fishing string @ 19.5 ft bgs.
	break at 7.6 ft bgs.
	tag @ 6.3 ft bgs.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Seidel, Sharp, Rivera
HPT: Widdis, Young
FWS: Clark

WEATHER: 100F, partly cloudy

DOWNTIME: 1 1/2 HRS. - TRAINING

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 7/30/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Moisture Probe boring installation (C-7153), C-7157 **DATE:** 7/30/09

LOCATION: Hanford Site. SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 69

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample # 's	Interval	%
1.		
2.	NA	
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

BOREHOLE SUMMARY

Borehole # C-7153 Tubing (2.5") @ 80' to 156' ft bgs; S.U. 2.3'

Borehole # C757 Tubing (2.5") @ 0' to \ ft bgs; S.U. \

Borehole # N-A Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7185	153.5 - 0.25	Moisture
2. NA		
3. NA		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = working non routine)
05:50	Travel to 'Smart' bldg. , ace in, Travel to SX farm
0:650	Pre-job at SX farm
07:10	Tighten head on Rig, maintence,
08:00	Move Rig back and set up on C-7153, Drove from
—	80' to 92', let head cool .5 hr (hard material), drive
—	from 92' to 124', let head cool again. Drive C-7153
—	to 156' (Refusal depth) tagged bottom at 156' B.G.S.,
12:00	Lunch
12:30	50/50 work regiment at 12:30 * Down-post RBRA, move
	rig and equipment to C-7157 and set up rig and
14:00	RBA and hearing protection zone
—	stand-by for heat, Travel to office, Paperwork and
—	time cards. (P.N.G. Moisture logged C-7185 from
—	C-7185 from 153.5 to 0.25)
15:00	END of shift.

NA

OPERATOR/LICENSE: Olson 11227
ES SUPPORT: Walkup
NCO: Sharp, Rivera, Siedell
HPT: Widdis, Young Laurendeau
FWS: Clark, PNG Randall

WEATHER: 103° F sunny

DOWNTIME: 1 hr for maintenance
1 hr for Heat

DISCARDED ITEMS:
1 - 2½" Drive head
12 Lynch pins
3 Nylatrol washers

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 7/31/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7184		**DATE:** 07/30/09
LOCATION: Hanford Site, SX Tank Farm	**EXCAVATION:** DAN-3650 **U-DIG #:** 9061396	**REPORT #:** 68
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 **AHA-**09-001 Rev 1
SAMPLING SUMMARY	**SITE/EQUIPMENT INSPECTION:** (Yes) No	*HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

Sample #'s	*Interval*	*%*
1.	N/A	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7184 *Tubing* (5 1/8") @ 6.5, *to* 56.0 *ft bgs; S.U.* 2.3'

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	*Interval*	*Type*
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: ROUTINE MAINTENANCE.
0540	TRAVEL TO "SX" FARM.
0615	STANDBY FOR HPT'S.
0700	PRE-JOB AT FARM
0715	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0735	BEGIN EFFORTS TO CLEAN FILL OUT OF #C7192A WITH SLIDE HAMMER.
—	FILL WAS BRIDGED. KNOCKED BRIDGE OUT. TAGGED BTB AT 109.0' BGS.
—	RAN CAMERA IN. UNABLE TO CLEARLY SEE BREAK IN PIPE.
0840	MOVED HHUXL AND SUPPORT EQUIPMENT FROM #C7192A TO #C7184 AND
—	SET-UP.
0930	EXITED FARM FOR BREAK.
0951	DRESSED AND ENTERED FARM. DROVE DUAL WALL WITH DUMMY TIP FROM
—	6.5 TO 20.0' BGS. EXITED FARM.
1150	LUNCH
1200	INFORMED BY D. CLARK - WRPS WORK BEST IS NOW 50/50 DRESSED AND
—	ENTERED FARM. DROVE DUAL WALL WITH DUMMY TIP FROM 20.0' BGS TO
—	46.0' BGS. EXITED FARM FOR 50/50 WORK REST.
1310	BREAK.
1340	DRESSED AND ENTERED FARM. DROVE DUAL WITH DUMMY TIP FROM
—	46.0' BGS TO 56.0' BGS. SECURED SITE AND EXITED FARM
1425	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIME CARD.
1510	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005 *ES SUPPORT: Walkup, Weakley, Ehrgott* *NCO: Seidel, Sharp, Rivera* *HPT: Widdis, Young* *FWS: Clark*	**WEATHER:** 102F, partly cloudy **DOWNTIME:** 45 MINS. - HPT'S	**DISCARDED ITEMS:** NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE F. WALKUP	**REVIEWED BY:** David E. Skoglie
TITLE : *ES TECHNICAL PREPARER*	**TITLE:** *ES TECHNICAL REVIEWER*
SIGNATURE: [signature]	**SIGNATURE:** [signature] **DATE:** 07/31/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7157 - Moisture Probe boring **DATE:** 7/31/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 70

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA-09-001 Rev 1**

SAMPLING SUMMARY **SITE/EQUIPMENT INSPECTION:** Yes No **HHU CASE#1** HHU CAT #2 **HHUXL#3**

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7157 Tubing (2.5") @ 0' to 100' ft bgs; S.U. 2.3'

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7153	155.5 to 130'	Gamma
2. NA		
3. NA		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = Insect bites), paperwork
05:45	Travel to SX farm
06:20	Pre-job at SX farm (stand-by for RCTs 6:20-7:25)
07:30	Move and set up generators and air samplers, move rod
—	to site, drive hole C-7157 from 0' to 47, let head cool
—	.5 hr, Drove from 47' to 72', let head cool.
—	Drove from 72' to 100'
11:45	Lunch
12:15	Travel to office, (PNG spectral gamma logged
—	C-7153 from 155.5 to 130', Problems with computer,
—	heat related.) paperwork, time cards
14:00	End of shift.

NA

OPERATOR/LICENSE: Olson - 1217
ES SUPPORT: Walkup
NCO: Sharp - Rivera - Sa
HPT: Young - Widdus, Laurendeau
FWS: Clark (PNG - Randall

WEATHER: 106° F Sunny

DOWNTIME: 1 hr for RCTs

DISCARDED ITEMS:
8 Lynch Pins
3 Nylatrol Washers

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.F. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David F Skoglie **DATE:** 7/31/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7184 | **DATE:** 07/31/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 69

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY | **SITE/EQUIPMENT INSPECTION:** (Yes) No | *HHU CASE#1* *HHU CAT #2* (HHUXL#3)

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7184 *Tubing* (5 5/8") @ 56.0' *to* 83.0 *ft bgs; S.U.* 3.3'

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: INSPECTION OF PPE.
0540	TRAVEL TO "SX" FARM.
0610	STANDBY FOR HPT'S.
0730	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED
0800	DRIVE DUAL WALL WITH DUMMY TIP FROM 56.0' BGS TO 76.0' BGS. EXITED
—	FARM FOR BREAK.
0925	WATER BREAK.
0944	DRESS AND ENTER FARM. DRIVE DUAL WALL WITH DUMMY TIP FROM
—	76.0' BGS TO FIRST SAMPLE INTERVAL AT 83.0' BGS. TAG TAPE WAS
—	USED TO CONFIRM DEPTH. SECURED SITE AND EXITED FARM.
1110	STANDBY, NO SAMPLER SUPPORT.
1130	LUNCH.
1200	STANDBY, NO SAMPLER SUPPORT. TRAVELED TO OFFICE. COMPLETED
—	PAPERWORK AND TIMECARD.
1320	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera
HPT: FRANZ,
FWS: Clark

WEATHER: 105F, sunny and the heat is on!

DOWNTIME: 1 HR. 20 MINS. - HPT'S

DISCARDED ITEMS: 10 - LYNCH PINS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: [signature] **DATE:** 07/31/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7157 moisture probe boring C-7155 - Moisture probe boring | DATE: 8/3/09

LOCATION: Hanford Site. SX Tank Farm | EXCAVATION: DAN-3650 U-DIG #: 9061396 | REPORT #: 71

START CARD NO. A118512 | DECOMMISSION NO. S27649 | RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY | SITE/EQUIPMENT INSPECTION: (Yes) No | HHU CASE#1 (HHU CAT #2) HHUXL#3

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7157 Tubing (2.5") @ 100' to 160' ft bgs; S.U. 2.3'
Borehole # C-7155 Tubing (2.5") @ 0' to 68' ft bgs; S.U. 2.3'
Borehole # N/A Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7153	130'-77'	Gamma
2. NA	\	\
3. NA	\	\

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = hydration)
05:45	travel to 'Smerf' bldg., gee in, travel to SX farm
06:40	Pre-job at SX farm
07:15	Fuel Rig, Rig inspection, drove hole C-7157 from 100' to
	160', Refusal depth final tag = 159.9' - 1/10" fill inside Rod.
09:15	Survey out RMA to move rig, Move Rig and
—	equipment to C-7155 and set up Rig and Zone, drove
—	C-7155 from 0' to 40', let head cool, Drive from 40 to
—	52', Pick up water for misters.
12:10	Lunch.
12:40	Drove C-7155 from 52' to 68', let head cool,
—	Pick up 15 joints of 2½" pipe at Energy NW
—	from our own supply. Travel to office, Paperwork
—	and time cards. PNG gamma logged C-7153 from 130' to 77'.
15:00	End of shift

NA

OPERATOR/LICENSE: Olson - 1217
ES SUPPORT: Weakley, Pessey
NCO: Sharp, Rivera
HPT: Young, Franz
FWS: Clark PNG - Randell

WEATHER: 101° F

DOWNTIME: N/A

DISCARDED ITEMS:
10 Lynch Pins
5 Nylatrols washers

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E Skoglie DATE: 8/04/05

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 2

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7184		**DATE:** 08/03/09
LOCATION: Hanford Site, SX Tank Farm	**EXCAVATION:** DAN-3650 **U-DIG #:** 9061396	**REPORT #:** 70

START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 **AHA**-09-001 Rev 1
SAMPLING SUMMARY	**SITE/EQUIPMENT INSPECTION:** (Yes) No	*HHU CASE#1* *HHU CAT #2* (HHUXL#3)

Sample #'s	*Interval*	*%*
1. B20~~[illegible]~~ 726	83'-85'	0%
2. B20~~[illegible]~~ 727	83'-85'	50%
3. B20728	104'-106'	100%
4. B20729	104'-106'	100%

BOREHOLE SUMMARY

Borehole # C7184 *Tubing* (2 5/8") *@* 83.0' *to* 106.0 *ft bgs; S.U.* 6.3'

Borehole # N/A *Tubing* ( ) *@* *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing* ( ) *@* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	*Interval*	*Type*
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: KEEPING HYDRATED.
0540	TRAVEL TO SMURF AND ACE. TRAVEL TO "SX" FARM.
0630	STANDBY FOR SAMPLERS.
0730	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL#3. NO PROBLEMS
—	NOTED. HAD 200' EXTENSION CORD SURVEYED OUT FOR USE AT "C" FARM.
~~0745~~ 0845	STANDBY FOR HPT'S.
0820	RUN INNER STRING AND SAMPLER IN HOLE. DRIVE. SAMPLE FROM 83.0' BGS
—	TO 85.0' BGS AT 0834 HRS. PULLED INNER STRING AND SAMPLER.
—	SAMPLER WAS LEFT IN HOLE DUE TO LACK OF SAMPLER SUPPORT.
—	EXITED FARM.
0845	STANDBY FOR SAMPLERS.
0930	DRESS AND ENTER FARM. PACKAGE SAMPLE AND GIVE TO NCO'S. RUN
—	INNER STRING AND DUMMY TIP IN HOLE. DRIVE DUAL WALL WITH
—	DUMMY TIP FROM 85.0' BGS TO 104.0' BGS. SAMPLE DEPTH.
—	(NOTE: SAMPLE # B20~~[illegible]~~ 726 (SHOE) 0% RECOVERY. SAMPLE # B20~~[illegible]~~ 727
—	(LINERS) 50% RECOVERY. PER HAROLD SYDNOR PERCENTAGE OF
—	RECOVERY IS ACCEPTABLE.) EXITED FOR WATER.
1045	WATER BREAK.
1100	DRESS AND ENTER FARM. PULL INNER STRING AND DUMMY TIP.
1116	RUN INNER STRING AND SAMPLER IN HOLE. DRIVE SAMPLE FROM 104.0' BGS
—	TO 106.0' BGS AT 1134 HRS. PULLED INNER STRING AND SAMPLER. 100%
—	RECOVERY. SAMPLE #'S B20728 (SHOE) B20729 (LINERS). EXITED FARM.
1210	LUNCH
1240	DRESS AND ENTER FARM. RAN INNER STRING AND DUMMY TIP IN HOLE.

OPERATOR/LICENSE: #3005 *ES SUPPORT: Walkup, Weakley, Ehrgott* *NCO: Sharp, Rivera*, ROSANE, RUST *HPT:* ~~Widdis~~ *Young*, FRANZ *FWS: Clark*	**WEATHER:** 103F, partly cloudy, winds 5-15 mph **DOWNTIME:** 2 HRS - SAMPLERS	**DISCARDED ITEMS:** 1 - LYNCH PIN

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP	**REVIEWED BY:** D.F. Skoglie
TITLE : *ES TECHNICAL PREPARER*	**TITLE:** *ES TECHNICAL REVIEWER*
SIGNATURE: [signature]	**SIGNATURE:** David F Skoglie DATE: 8/04/09

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No.	Continuation of Report No.
08/03/09	C7184	70

DESCRIPTION OF OPERATIONS/REMARKS

—	DROVE DUAL WALL WITH DUMMY TIP FROM 106.0' BGS TO 116.0' BGS
—	SECURED SITE AND EXITED FARM.
1410	TRAVELED TO OFFICE, COMPLETED PAPERWORK AND TIMECARD.
1500	END OF SHIFT.

N/A

Report By	MIKEL WORKMAN	Reviewed By	D.E. Skogline		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	8/04/09
Signature	[signature]	Signature	[signature]		

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: C-7155 - Moisture Probe boring | DATE: 8/4/09

LOCATION: Hanford Site. SX Tank Farm | EXCAVATION: DAN-3650 U-DIG #: 9061396 | REPORT #: 72

START CARD NO. A118512 | DECOMMISSION NO. S27649 | RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY | SITE/EQUIPMENT INSPECTION: Yes No | HHU CASE#1 HHU CAT #2 HHUXL#3

Sample #'s Interval %

1.
2. NA
3.
4.

BOREHOLE SUMMARY

Borehole # C-7155 Tubing (2.5") @ 68' to 156' ft bgs; S.U. 2.3

Borehole # N/A Tubing (\ ) @ \ to \ ft bgs; S.U. ____

Borehole # N/A Tubing (\ ) @ \ to \ ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7153	N/A	N/A
2. NA	\	\
3. NA	\	\

TIME	WORK SUMMARY
05:30	Safety meeting at office, subject = construction falls
05:50	Travel to SX Farm
06:25	Pre-job at SX Farm (20 min wait for RCTS)
06:45	Inspect rig, fuel rig and generators, drive hole C-7155
—	from 68' to 108', let head cool, work on cleaning
—	fuel valve on generator, No logging conducted (Brent R.
—	sick with food poisening), Drove from 108' to 140', let
—	head cool, pick up sawzall at C-farm for repairs
—	on HHUXL, Drove C-7155 from 140' to refusal at 156',
—	Final tag = 156' B.G.S., no fill in Pipe.
11:30	Lunch
12:00	Stand-by for logging, work on progress sheet,
—	Surveyed rig and area out, put away tools and
—	equipment.
14:00	Travel to office, paperwork and time-cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson - #1217
ES SUPPORT: Passey
NCO: Sharp - Rivera
HPT: Young - Laurendeau, Widdus
FWS: Clark, PNG - ~~Randall~~ K.O.

WEATHER: 102° F Sunny

DOWNTIME: 13 hr for RCTS, 2 hr. for Logging.

DISCARDED ITEMS: 1 set ear muffs, 6 Lynch Pins, 2 Nyktrol washers

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Ol

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: [signature] DATE: 8/5/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7184 | **DATE:** 08/04/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 71

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. 820730	128.5'-130.5'	100%
2. 820731	128.5'-130.5'	
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No | **HHU CASE#1** **HHU CAT #2** (HHUXL#3)

BOREHOLE SUMMARY

Borehole #C7184 Tubing (2 5/8") @116.0' to 141.0' ft bgs; S.U. 1.5'

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: FALL HAZARDS.
0525	TRAVEL TO "SX" FARM.
0600	STANDBY FOR HPT'S.
0650	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0710	DROVE DUAL WALL WITH DUMMY TIP FROM 116.0' BGS TO THIRD SAMPLE INTERVAL
—	AT 128.5' BGS. PULLED INNER STRING AND DUMMY TIP. SAMPLE DEPTH WAS
—	CONFIRMED WITH A TAG TAPE. EXITED FARM
0750	STANDBY FOR SAMPLERS.
0950	DRESS AND ENTER FARM. RUN INNER STRING AND SAMPLER IN HOLE. DRIVE DUAL
—	WALL WITH SAMPLER FROM 128.5' TO 130.5' AT 1024 HRS. PULLED INNER
—	STRING AND SAMPLER. 100% RECOVERY. SAMPLE #'S 820730 (SHOE) AND
—	820731 (LINERS). EXITED FARM.
1100	LUNCH.
1130	DRESS AND ENTER FARM. TEMPORARILY REPAIR CRACKED HOSE BRACKET
—	ON HHUXL #3. NOTE: IH TECH ONSITE AT 1200 HRS. MONITORING OUTSIDE OF
—	FARM.
1246	RAN INNER STRING WITH DUMMY TIP IN HOLE. DROVE DUAL WALL FROM 130.5' BGS
—	TO FINAL SAMPLE INTERVAL AT 141.0' BGS. INNER STRING AND DUMMY TIP
—	WAS PULLED. SECURED SITE AND EXITED FARM.
1405	TRAVELED TO OFFICE, COMPLETED PAPERWORK AND TIMECARD.
1500	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera, ROSANE, RUST
HPT: Widdis, Young
FWS: Clark

WEATHER: 101F, partly cloudy, winds 5-10 mph

DOWNTIME:
50 MINS. - HPT'S
2 HRS. - SAMPLERS

DISCARDED ITEMS:
5 - LYNCH PINS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Michael Walkup
TITLE: *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: [signature] **DATE:** 8/5/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Logging /stand-by for logging /Rig maintenance

DATE: 8/5/09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 73

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7153	77-16'	Gamma
2. NA		
3. NA		

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = lead abatement)
05:45	Travel to SX farm
06:15	Pre-job at SX farm
06:45	Stand-by for geophysical logging, Move rig off hole C-C155,
—	Put away tools and materials, moved rig to horse trailer,
—	Rotated jaws in holding clamps, tightened hydraulic motor on
—	mast swivel, inspected rig, inventory equipment for
—	Hard Sydnor and gather H-O numbers
11:30	Lunch
12:00	Off load bentonite at SX farm, Take
—	Ford F-150 into Town, Service Pick-up and
—	wash truck while standing by for logging
—	P.N.G. Spectral gamma logged C-7153 from
—	77' to 16.
15:00	End of Shift

NA

OPERATOR/LICENSE: Olson 117
ES SUPPORT: Weakley
NCO: Sharp - Riviera
HPT: Young - Widlus, Mincey
FWS: Clark, BNG - Randall

WEATHER: 97°F Partly cloudy

DOWNTIME: 9 hr stand-by for logging

DISCARDED ITEMS:

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: D.E. Skoglie DATE: 8/06/09

ENERGYSOLUTIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Complete sampling activities at #C7184 and decommission | **DATE:** 08/05/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 72

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: *Yes* (*No*) | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

BOREHOLE SUMMARY

Borehole # C7184 *Tubing* (3 1/8") @ 411.0' *to* N/A *ft bgs; S.U.* ____

Borehole # n/a *Tubing (* *) @* *to* *ft bgs; S.U.* ____

Borehole # n/a *Tubing (* *) @* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: ACTION LEVELS AND PEL'S.
0535	STANDBY FOR LEAD AWARENESS TRAINING.
0610	LEAD AWARENESS TRAINING.
0704	TRAVEL TO "SX" FARM.
0750	STANDBY FOR SAMPLERS
1130	LUNCH.
1200	STANDBY FOR SAMPLERS. TRAVELED TO ENW, LOCATED EQUIPMENT
—	FOR LEAD REMOVAL. TRAVEL TO OFFICE. COMPLETED PAPERWORK
—	AND TIMECARD.
1445	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera
HPT: Widdis, Young
FWS: Clark

WEATHER: 96F, chance of thunder storms

DOWNTIME: 9 HRS. - SAMPLERS

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Mike Walkup
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D. E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: [signature] **DATE:** 08/06/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Logging / stand-by for logging / Rig maintenance

DATE: 8/6/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 74

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: Yes No

HHU CASE#1 HHU CAT #2 HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7153	16-15'	S. Gamma
2. C-7153	156-40	Moisture
3. C-7157	159-125	S. Gamma

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = Food Poisoning) send out daily, paperwork
06:00	work on equipment at Energy N.W. (generators) while
—	stand-by for logging, Travel to SX farm, Mike Passey
—	had arm-sleeve training at 'Smart' building, P.N.G completes
—	gamma logging at C-7153, check breaking system on winch
—	install new cable.
11:30	Lunch
12:00	continue stand-by for logging, P.N.G. moisture
—	logged C-7153 from 156' to 40 C7157 157 to 125 S. gamma
—	Continue maintenance on rig, clean-up, Travel
—	to office, Paperwork and time cards.
15:00	End of shift

NA

OPERATOR/LICENSE: Olson #1217

ES SUPPORT: Passey

NCO: Sharp - Rivera

HPT: Young - Widdus

FWS: Clark - P.N.G - Randall

WEATHER: 87°F Cloudy

DOWNTIME: 9 hr for logging

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: D.E. Skoglie DATE: 8/06/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Complete sampling activities at #C7184 and decommission | **DATE:** 08/06/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 2273 set

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s *Interval* *%*

1.
2. N/A
3.
4.

SITE/EQUIPMENT INSPECTION: *Yes* (No) | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

BOREHOLE SUMMARY

Borehole # C7184 *Tubing (* 3½" *) @* 141.0' *to* N/A *ft bgs; S.U.* N/A

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing (* *) @* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. N/A
2.
3.

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: FOOD POISONING. WASH YOUR VEGGIES.
0540	TRAVEL TO "SX" FARM.
0610	STANDBY ACP-014 (LIGHTNING)
0820	EXITED ACP-014, BACK ON STANDBY, NCO'S NEED ARM SLEEVE TRAINING.
0930	STANDBY, ARM SLEEVE TRAINING AT SMART BUILDING.
1020	ARM SLEEVE TRAINING COMPLETE. STANDBY FOR WIND.
1130	LUNCH.
1200	STANDBY FOR WIND. TRAVEL TO OFFICE. COMPLETE PAPERWORK AND
~	TIME CARD.
1500	END OF SHIFT.

N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera
HPT: Widdis, Young
FWS: Clark

WEATHER: 94F, chance of thunder storms

DOWNTIME:
2 HRS. & 10 MINS - ACP-014
2 HRS - ARM SLEEVES
4 HRS. & 50 MINS - WIND

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Mike Walker
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: [signature] **DATE:** 08/06/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Logging (moisture and Spectral gamma C-7153 C-7155 C-7157 DATE: 8/7/09

LOCATION: Hanford Site. SX Tank Farm EXCAVATION: DAN-3650 U-DIG #: 9061396 REPORT #: 75

START CARD NO. A118512 DECOMMISSION NO. S27649 RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: *Yes* *No* *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

SAMPLING SUMMARY

Sample #'s	*Interval*	*%*
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # NA *Tubing (*) @ *to* *ft bgs: S.U.*

Borehole # NA *Tubing (*) @ *to* *ft bgs: S.U.*

Borehole # NA *Tubing (*) @ *to* *ft bgs: S.U.*

GEOPHYSICAL LOGGING

Boring #	*Interval*	*Type*
1. C-7153	40'-0'	moisture
2. C-7155	155.5'-120'	moisture
3. C-7157	125-66'	gamma

TIME	WORK SUMMARY
03:30	Travel to SX farm
04:10	Pre-job at SX farm
04:45	fuel generators assist Brent setting up at C-7153 and C-C-7157, P.N.G. logged C-7153 from 40' to 0' moisture, C-7155, 155.5' to 120' moisture, and gamma logged C-7157 from 125' to 66'
11:20	Return source, put away equipment
—	Travel to office, paperwork, time card
12:00	End of shift

NA

OPERATOR/LICENSE: Olson 1217
ES SUPPORT: NA
NCO: Sharp
HPT: Widdus
FWS: Clark P.N.G - Randall

WEATHER: 82 F cloudy

DOWNTIME: NA

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Sloglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: D.E. Sloglie DATE: 08/11/09

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ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Lossing, Probe installation C-7153

DATE: 8/10/09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 76

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

Sample # 's	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7153 Tubing (2.5") @ 156' to 80' ft bgs; S.U. 23'

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7155	120-0'	moisture
2. C-7157	66'-28'	gamma
3. NA	\	\

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = Ahkoms Razor)
05:45	Travel to 'Smart' building, travel to SX farm
06:30	Pre-job at SX farm,
07:00	Stand-by for Probe depths, Tape up Probes
08:30	Received probe depths, move rig, set up RMA
~~10:30~~ 10:00	and road signs, set up rig and equipment
10:30	Back-pull C-7153 from 156' to 152', Knock-out
—	tip, back-pull to 132', set moisture probe from 140 to 142',
—	sand from 144' to 135', Tags at Top of Bentonite (144') Bottom of
—	probe (142'), top of sand (135'), back pull to 120', survey out.
12:00	Lunch
12:30	Back-pull C-7153 from 120' to 80', stopped just
14:00	below next probe placement interval of 76'.
—	Survey out, clean up, put away materials.
—	P.N.G. gamma logged C-7157 from 66' to 28', and
14:25	moisture logged C-7155 from 120' to 0'.
14:25	Travel to office, paperwork and time cards
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson 1127

ES SUPPORT: Weakley

NCO: Rivera, Sharp

HPT: Young Widdus

FWS: Clark PNG - Randall

WEATHER: 93°F Sunny

DOWNTIME: 2 hr - stand-by for direction

DISCARDED ITEMS:
1 - 36" Pipe wrench jaw
1 - 150' Moisture Probe
1 - sack sand
1 - 2.5" expendable tip
4 - sacks Bentonite

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Stoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: D.E. Stoglie DATE: 8/11/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Complete sampling activities at #C7184 and decommission | **DATE:** 08/10/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** ~~73~~ 74 DEH

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B20VK6	141'-143'	100%
2. B20VK7	141'-143'	100%
3. N/A		
4. N/A		

SITE/EQUIPMENT INSPECTION: Yes No | *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

BOREHOLE SUMMARY

Borehole # C7184 *Tubing* (2 5/8") @ 141.0' *to* G.S. *ft bgs; S.U.* N/A

Borehole # C7186 *Tubing* (2 5/8") @ G.S. *to* N/A *ft bgs; S.U.* N/A

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: KEEP IT SIMPLE STUPID! (K.I.S.S.)
0545	TRAVEL TO "SX" FARM.
0620	STANDBY FOR SAMPLERS.
0735	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0756	PULL INNER STRING AND DUMMY TIP.
0815	RUN INNER STRING AND SAMPLER IN. DRIVE SAMPLE FROM 141.0' BGS
—	143.0' BGS AT 0837 HRS. PULLED SAMPLER AND INNER STRING. 100%
—	RECOVERY. SAMPLE #'S B20VK6 (SHOE) AND B20VK7 (LINERS) EXITED
—	FARM.
0910	BREAK
0930	DRESS AND ENTER FARM. BACK-PULL 2 5/8" CASING FROM 143.0' BGS TO
—	G.S. EXIT FARM. USED 8 1/2 SKS. BENTONITE.
1210	LUNCH
1240	DRESS AND ENTER FARM. MOBILIZE HHUXL #3 TO #C7186 AND SET-UP.
—	SECURED SITE AND EXITED FARM.
1425	TRAVELED TO OFFICE. COMPLETE PAPERWORK AND TIMECARD.
1515	END OF SHIFT.

N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera, RUST
HPT: Widdis, Young, MINCEY
FWS: Clark

WEATHER: 92F, winds light and variable

DOWNTIME: 1 1/4 HRS. - SAMPLERS

DISCARDED ITEMS: 8 1/2 SKS. - BENTONITE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.F. SKoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: Dan F Skoglie **DATE:** 8/11/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation C-7153, Logging

DATE: 8/11/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 77

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 HHU CAT #2 HHUXL#3

BOREHOLE SUMMARY

Borehole # C-7153 Tubing (2.5") @ 80' to 0' ft bgs; S.U. 1

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

Borehole # N/A Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1 C-7155	155-132'	gamma
2 C-7157	28-0'	gamma
3 C-7157	159-80	moisture

TIME	WORK SUMMARY
05:30	Safety meeting at office, subject = Work priority's, fuel Pick-up
05:50	Travel to SX farm
06:30	Pre-job at SX farm
07:00	Inventory Rods inside farm, gather bentonite fuel generators,
—	Rig inspection, back pull C-7153 from 80' to 65', bring bentonite
—	to 78' (tag), sand to 76' (tag), install moisture probe from 74' to
—	76', sand to 69' (tag), add saline solution, back-pull from
9:30 KO	65' to 20', survey out
9:30	allow pipe to dry, survey out items no longer needed
KO	from RMA
10:00	Back pull from 20' to 0', put away equipment,
—	survey out
10:45	stand-by for results from logging
11:45	Lunch
12:15	Assist changing cross-over sub on HHUXL while standing
—	by for logging results. Survey out equipment.
—	P.N.G. gamma logged C-7157, P.N.G. gamma logged
—	C-7155 from 155' to 132' and moisture logged C-7157
—	from 159 to 80'.
14:20	Travel to office, paperwork and time cards
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson 1217
ES SUPPORT: Walker
NCO: Rivera, Sharp
HPT: Young, Widdus, Nixey
FWS: Clark, PNG - Randall

WEATHER: 90° F

DOWNTIME: 3 hr for logging results

DISCARDED ITEMS:
1 - 100' Probe - 2 salt's
4 sacks bentonite
1 sack sand

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie DATE: 08/12/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7186 | **DATE:** 08/11/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 74 75

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	N/A	
3.		
4.		

SITE/EQUIPMENT INSPECTION: Yes No | *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

BOREHOLE SUMMARY

Borehole # C7186 *Tubing* 2 1/2" *@* G.S. *to* 72.0 *ft bgs; S.U.* 2.3'

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: WHAT IS OUR CUSTOMER'S PRIORITY?
0545	TRAVEL TO "SX" FARM.
0630	STANDBY FOR HPT'S.
0650	RBE-305 AT "SX" FARM.
0700	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0735	DRIVE DUAL WALL WITH DUMMY TIP FROM G.S. TO 56.0' BGS. EXITED
—	FARM FOR BREAK.
0910	BREAK.
0930	DRESS AND ENTER FARM. DRIVE DUAL WALL WITH DUMMY TIP FROM 56.0'
—	BGS TO 72.0' BGS. CROSSOVER SUB. CRACKED. EXITED FARM.
1100	LUNCH
1130	GATHER EQUIPMENT TO REPAIR RIG.
1210	DRESS AND ENTER FARM. REPLACED DAMAGED CROSSOVER SUB. WITH A
—	NEW ONE. SECURED SITE AND EXITED FARM
1430	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1500	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera
HPT: Widdis, Young, FRANZ
FWS: Clark

WEATHER: 90F, partly cloudy

DOWNTIME: 30 MINS. - HPT'S

DISCARDED ITEMS:
1 - BAKER LOK
1 - CROSSOVER SUB.
6 - LYNCH PINS
2 - NYLATRON DOUGHNUTS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D. E. SKoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/12/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Logging, Sampling - C-7154

DATE: 8/12/09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 78

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample # 's	Interval	%
1.	NA	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

BOREHOLE SUMMARY

Borehole # C-7154 Tubing (2 5/8") @ 0' to 60' ft bgs; S.U. 2.3

Borehole # NA Tubing ( ) @ to ft bgs; S.U.

Borehole # NA Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7155	132'-80	gamma
2. C-7157	80' to 0'	moisture
3. N/A		

TIME	WORK SUMMARY
05:30	Safety meeting at office - (subject = sand and bentonite)
05:45	Travel to SX farm
06:25	Pre-job at SX farm (wait for all personell)
07:05	Gather equipment for dual wall, move Rod out of zone, Rod in.
08:05	Finish set up, drive dual wall at C-7154 from
~~11:00~~ R.O	0 - 40', let head cool, survey out
11:00	Lunch
11:30	Continue driving dual wall at C-7154 drove from
—	40' to 52', let head cool, Drive from 52' to
—	60', P.N.G. gamma logged C-7155 from 132'
—	to 80', P.N.G. moisture logged C-7157 from 80' to 0'
—	Clean-up and put away tools.
13:30	Stand-by for WRPS all employee meeting
—	Travel to office paperwork, time cards.
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson - 1217
ES SUPPORT: Weakley
NCO: Sharp - Rivera
HPT: Young, Widdos - Mincey
FWS: Clark - P.N.G. Randall

WEATHER: 80° F Cloudy - showers

DOWNTIME: 1 hr all Employee meeting.

DISCARDED ITEMS: 3 nylatrol washers, 10 Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie DATE: 8/13/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin sampling activities at #C7186		**DATE:** 08/12/09
LOCATION: Hanford Site, SX Tank Farm	**EXCAVATION:** DAN-3650 **U-DIG #:** 9061396	**REPORT #:** 76
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 **AHA**-09-001 Rev 1
SAMPLING SUMMARY	**SITE/EQUIPMENT INSPECTION:** Yes No	*HHU CASE#1* *HHU CAT #2* *HHUXL#3*

Sample #'s	*Interval*	*%*
1. B20732	105'-107'	100%
2. B20733	105'-107'	100%
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7186 *Tubing (* 2 5/8" *) @* 72.0' *to* 128.0' *ft bgs; S.U.* 2.3'

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

Borehole # N/A *Tubing ( ) @ to ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	*Interval*	*Type*
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: BENTONITE AND SILICA SAND.
0535	TRAVEL TO "SX" FARM.
0605	STANDBY FOR HPT'S.
0650	PRE-JOB AT "SX" FARM.
0705	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0735	DRIVE DUAL WALL WITH DUMMY TIP FROM 72.0' BGS TO FIRST SAMPLE
—	INTERVAL AT 105.0' BGS. PULLED INNER STRING AND DUMMY TIP. TAGGED
—	BOTTOM WITH TAPE TO CONFIRM DEPTH.
0940	RUN INNER STRING AND SAMPLER IN HOLE. DRIVE SAMPLE FROM 105.0' BGS
—	TO 107.0' BGS AT 1002 HRS. PULLED SAMPLER. 100% RECOVERY. SAMPLE
—	#'S B20732 (SHOE) AND B20733 (LINERS). EXITED FARM.
1045	LUNCH.
1115	DRESS AND ENTER FARM. DRIVE DUAL WALL WITH DUMMY TIP FROM 107.0' BGS
—	TO 2nd SAMPLE INTERVAL AT 128.0' BGS. DEPTH WAS VERIFIED WITH TAG TAPE.
—	SECURED SITE AND EXITED FARM.
1330	STAND BY. WRPS ATTENDING ALL HANDS MEETING IN TOWN. TRAVELED TO
—	OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1500	END OF SHIFT
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera
HPT: Widdis, Young, MINCEY
FWS: Clark

WEATHER: 79F, partly cloudy with a chance of showers.

DOWNTIME:
3/4 HR. - HPT'S
1 1/2 HR. - WRPS ALL HANDS MEETING.

DISCARDED ITEMS:
4- LYNCH PINS
1- INNER ROD

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/13/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling C-7154, Logging

DATE: 8/13/09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 79

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUX1#3

Sample #'s	Interval	%
1. B206P7	74-76'	100%
2. B206P6	74-76	100%
3. NA	\	\
4. NA	\	\

BOREHOLE SUMMARY

Borehole # C-7154 Tubing (2 5/8") @ 60' to 93' ft bgs; S.U. 1.3

Borehole # N/A Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # N/A Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7155	80-17	SGamma
2. NA	/	/
3. NA	/	/

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = equipment inspections)
05:45	Travel to SX farm
06:25	Pre-job at SX farm
06:55	Rig inspection, fuel generators, drive sample boring
—	C-7154 from 60' to 74', Pull dummy tips, install
—	sampler, drive sample # B206P7 -(Liner#), and B206P6 (shoe#)
—	from 74' to 76' at 9:00 A.M., Pull sampler, process
—	samples.
9:45	Break
10:00	Install inner rod + dummy tip, drive from 76' to
—	84', survey out.
12:00	Lunch
12:30	Drive dual wall at C-7154 from 84' to 91'
—	(extremely hard at 89') Let head cool, Drove to
—	93', PNG gamma logged C-7155 from 80' to
—	17'
14:30	Travel to office, paperwork, time cards.
15:00	End of shift

NA

OPERATOR/LICENSE: Olson - #1217

ES SUPPORT: Walkup

NCO: Rivera - Sharp

HPT: Widdus - Young

FWS: Clark - PNG - Randall

WEATHER: 80° F Cloudy, breezy

DOWNTIME: NA

DISCARDED ITEMS:

3 sample liners
6 'O' rings
12 Lynch pins
3 nylatrol washers

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 8/14/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue sampling activities at #C7186 | **DATE:** 08/13/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 77

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B20734	128'-130'	100%
2. B20735	128'-130'	100%
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No | *HHU CASE#1* *HHU CAT #2* (HHUXL#3)

BOREHOLE SUMMARY

Borehole # C7186 *Tubing* (2 3/8") *@* 128' *to* 145' *ft bgs; S.U.* 2.3'

Borehole # n/a *Tubing ( ) @ to ft bgs; S.U.* ____

Borehole # n/a *Tubing ( ) @ to ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	n/a	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: EQUIPMENT AND VEHICLE INSPECTIONS.
0545	TRAVEL TO "SX" FARM.
0645	STANDBY FOR HPT'S.
0700	DRESS AND ENTER FARM, FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0720	PULL INNER STRING AND DUMMY TIP.
0735	RUN INNER STRING AND SAMPLER IN HOLE, DRIVE SAMPLE FROM 128.0' BGS
—	AT 0751 HRS. 100% RECOVERY. SAMPLE #'S B20734 (SHOE) B20735
—	(INNERS)
0920	DRIVE DUAL WALL WITH DUMMY TIP FROM 130.0' BGS TO FINAL SAMPLE
—	INTERVAL AT 145.0' BGS. SECURES SITE AND EXITED FARM.
1030	STANDBY, NO SAMPLER SUPPORT.
1130	LUNCH
1200	STANDBY, NO SAMPLER SUPPORT. TRAVEL TO FMW. TRAVEL TO OFFICE.
—	COMPLETE PAPERWORK AND TIMECARD.
1500	END OF SHIFT.
	n/a

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Weakley, Ehrgott
NCO: Sharp, Rivera, BUST, WALKER
HPT: Widdis, Young, MINCEY
FWS: Clark

WEATHER: 81F, partly cloudy and winds 10-20 mph

DOWNTIME:
3/4 HR. - HPT'S
4 HRS. - SAMPLERS

DISCARDED ITEMS: NONE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Sloglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Sloglie **DATE:** 8/14/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling – C-7154-A, Logging, decommissioning C-7154-A (7154)

DATE: 8/14/09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 80

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	NA	
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7154-A Tubing (2 5/8") @ 93' to 0' ft bgs; S.U. 0'

Borehole # C-7154 Tubing (2 5/8) @ 0' to 0' ft bgs; S.U. 0'

Borehole # NA Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C-7155	17-0'	Gamma
2. NA		
3. NA		

TIME	WORK SUMMARY
05:30	Weekly & monthly safety meeting at office (subjects = motorcycle safety + team work)
07:30	Travel to SX farm
08:10	Pre-job at SX farm.
08:30	Fuel generators, inspect rig, went to make up joint and
—	noticed abnormal joint heigth, found outer rod broken, pulled
—	inner rod and dummy tip, back pulled 15 joints, found outer rod
—	top of break at 58.7' b.g.s., total of 34.3' of 2 5/8"
—	rod left in ground (8 joints + 2.3' bottom assembly), back
—	filled with bentonite to surface. Moved rig back
—	2' to the north and set up on C-7154. survey out.
12:00	Lunch
12:30	Gather equipment, finish set up while stand-by
—	for high winds, inspect rods and set up to re-drive.
13:20	Travel to office, paperwork and time cards
14:00	End of shift. PNG Gamma logged C-7155 from 17' to 0'.
	NA
	Note on break,
	bottom of Rod 93' -
	top 58.7'
	8-joints and one bottom assembly

OPERATOR/LICENSE: Olsen / 1217

ES SUPPORT: Weakley

NCO: Rivera

HPT: Mitsey

FWS: Clack P.N.G. – Randall

WEATHER: 79°F 10-20 wind Partly Cloudy

DOWNTIME: stand-by for wind 1 hr

DISCARDED ITEMS:
8 joints - 4' x 2 5/8"
1 joint Box x Box 2 5/8" 2 5/8"
1 Tip holder (2 5/8) 5" Bottom Assembly

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 8/14/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Standby due to lack of sampler support | **DATE:** 08/14/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 78

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s *Interval* *%*

1.
2. N/A
3.
4.

SITE/EQUIPMENT INSPECTION: *Yes* (*No*) | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

BOREHOLE SUMMARY

Borehole # C7586 *Tubing* (2 5/8") @ 145' *to* N/A *ft bgs; S.U.* 2.3'

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. N/A
2.
3.

TIME	WORK SUMMARY
0530	MONTHLY SAFETY MEETING AT OFFICE. TOPIC: TEAMWORK.
0710	TRAVEL TO "SX" FARM.
0745	STANDBY, NO SAMPLER SUPPORT.
1200	LUNCH
1230	STANDBY, NO SAMPLER SUPPORT. TRAVELED TO OFFICE. COMPLETED PAPER-
—	WORK AND TIMECARD.
1400	END OF SHIFT.

N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Ehrgott
NCO: Sharp, Rivera
HPT: MINCEY
FWS: Clark

WEATHER: 79F, partly cloudy and winds 10-20 mph

DOWNTIME: 8 Hours—No support from sampling group.

DISCARDED ITEMS: None

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mike Walkup

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/14/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling C-7154 **DATE:** 8/17/09

LOCATION: Hanford Site. SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 81

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA-09-001 Rev 1**

SAMPLING SUMMARY **SITE/EQUIPMENT INSPECTION** Yes No **HHU CASE#1** **HHU CAT #2** **HHUXL#3**

Sample # 's	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7154 Tubing (2 5/8") @ 0' to 101' ft bgs; S.U. 1.3'

Borehole # NA Tubing ( ) @ / to (ft bgs; S.U. /

Borehole # NA Tubing ( ) @ / to / ft bgs; S.U. /

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = crane safety)
05:45	Travel to SX farm
06:20	Pre job at SX farm
06:50	Stand-by for RCTS
07:05	Arr in, inspect rig, set up air samples, RCTS do pre-survey of ground
—	prior to driving, Drive from 0' to 52' with dual wall, left head
—	cool, drove from 52' to 60', left head cool, drove from
—	60' to 72', survey out.
12:00	Lunch
12:30	Drove sample boring C-7154 from 72' to 101',
~~14:30~~ 13:00	Fuel rig., survey out.
14:30	Travel to office paperwork, time cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson - #1217
ES SUPPORT: Passey
NCO: Sharp - Siedell
HPT: Widdus, Young, Mincey
FWS: Clark

WEATHER: 91 F Sunny

DOWNTIME: .25 hr for RCTS

DISCARDED ITEMS:
10 Lynch pins
2 nylatrol washers

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/18/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Complete sampling and decommission #C7186 **DATE:** 08/17/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 79

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1 B20736	145'-147'	100%
2 B20737	145'-147'	100%
3. N/A		
4. N/A		

SITE/EQUIPMENT INSPECTION: (Yes) No **HHU CASE#1** **HHU CAT #2** (HHUXL#3)

BOREHOLE SUMMARY

Borehole # C7186 Tubing (5 3/8") @ 147' to G.S. ft bgs; S.U. N/A

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: CRANE AND RIGGING.
0535	TRAVEL TO "SX" FARM.
0610	STANDBY FOR SAMPLERS. ACE AT "SX" FARM.
0720	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0746	PULL INNER STRING AND WIMMY TUB.
0806	RUN INNER STRING AND SAMPLER IN. DROVE SAMPLE FROM 145.0' BGS
—	TO 147.0' BGS AT 0829 HRS. AND RETRIEVED. 100% RECOVERY. SAMPLE
—	#'S B20736 (SHOE) AND B20737 (LINERS). EXITED FARM.
0945	BREAK.
0955	DRESS AND ENTER FARM. BACKPULL 2 5/8" PIPE AND DECOMMISION
—	#C7186 FROM 147.0' BGS TO 84.0' BGS. ESS EMPLOYEE HAD A
—	METAL SLIVER PENETRATE HIS LEATHER GLOVE AND ENTER HIS RIGHT HAND
—	MIDDLE FINGER. SLIVER WAS REMOVED. A TECH SWEAR WAS TAKEN OF BLOOD
—	FOR COUNTING. EMPLOYEE WAS TAKEN TO ARCH FOR EVALUATION AFTER EXITING
—	FARM AT 1030 HRS. AFTER EVALUATION EMPLOYEE WAS RELEASED TO WORK
—	WITH NO RESTRICTIONS.
1200	LUNCH.
1230	DRESS AND ENTER FARM. BACKPULL 2 5/8" PIPE FROM 84.0' BGS TO G.S.
—	USED 9 SACKS OF BENTONITE. SECURED SITE AND EXITED FARM.
1415	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1500	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Ehrgott
NCO: Shawn Rivera, RUST, KALER
HPT: Widdis, Young, MINCEY
FWS: Clark

WEATHER: 89F, sunny and mild

DOWNTIME:
1 HR. & 10 MINS. - SAMPLERS
1 HR. & 40 MINS. - ACE

DISCARDED ITEMS:
9 - SKS. BENTONITE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKEL WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mikel Walkup

REVIEWED BY: D.E. SKOGLIE
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/18/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling boring - C-7154, Decommissioning C-7154

DATE: 8/18/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 82

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B206P8	106-108	100%
2. B206P9	106-108	100%
3. N/A	\	\
4. N/A	\	\

BOREHOLE SUMMARY

Borehole # C-7154 Tubing (2 5/8") @ 101' to 117' ft bgs; S.U. 1.3' 0'

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. 1

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = slivers)
05:50	Travel to SX farm
6:30	Pre-job at SX farm
6:45	fuel generators, other equipment while stand-by for RCTs
7:15	inspect rig, drive C-7154 from 101' to 106' (sampling
—	depth), back-pull dummy tip, install sampler, drive
—	sample #B206P9 - Liners, B206P8 - shoe from 106' to
—	108' at 9:50 A.M (100% recovery), processed sample,
—	installed dummy tip, drove to 117', went to make
—	up joint, noticed wrong height on inner rod, outer rod
—	broke at 117', survey out.
11:35	Lunch
12:05	Stand-by for RCTS
—	Back-pull inner rod and dummy tip, Back-pull
—	17 joints of 29, found broken pin at 12th joint, 12 joints
—	remaining in ground and one bottom assembly -
—	Top of break = ~~66.7~~ 64' BGS - bottom of Rod = 117',
—	back-fill with bentonite to surface, clean up,
—	survey out.
14:25	Travel to office, paperwork and time cards
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson #1217

ES SUPPORT: Pessey

NCO: Sharp, Rivera, Siedell

HPT: Young, Mincey, Widder

FWS: Clark

WEATHER: 97 F Sunny

DOWNTIME: ~~1.5 hr~~ 1 hr for RCTS

DISCARDED ITEMS:
3 sample liners - 5 sacks bentonite
6 5' Rinse
2 sets 18" Pipe-wrench jaws
12 joints 2 5/8" x 4'
1 Bottom assembly (2 5/8")

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: K. Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: Daniel E. Skoglie DATE: 8/19/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin probe installation and decommissioning at #C7185 | **DATE:** 08/18/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 80

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY | **SITE/EQUIPMENT INSPECTION:** (Yes) No | *HHU CASE#1* *HHU CAT #2* (HHUXL#3)

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

BOREHOLE SUMMARY

1) Borehole # C7185 Tubing (3½") @ 156' to G.S. ft bgs; S.U. N/A
2) Borehole # C7185 Tubing (3½") @ G.S. to 128' ft bgs; S.U. 2.3'
Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: SLIPERS AND SLURPS.
0545	TRAVEL TO "SX" FARM.
0600	STANDBY FOR HPT'S.
0715	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0745	MOVE HHUXL AND SUPPORT EQUIPMENT TO #C7185 AND SET-UP.
0805	TRIED TO KNOCK OUT TIP. ~ 2.0' OF SOIL IS IN BOTTOM OF PIPE. TIP WOULD
—	NOT COME OUT. TWO 4' RODS HAD BEEN PULLED. BOTTOM OF PIPE IS 145.0' BGS.
—	ATTEMPTED TO REMOVE SOIL WITH SLIDE HAMMER AND CLEAN-OUT TOOL
—	ONLY ABLE TO REMOVE ~ 6.0" OF SOIL. EXITED FARM.
0915	BREAK
0930	DECISION WAS MADE TO PULL PIPE AND REDRIVE TO PROBE DEPTH.
—	DRESS AND ENTER FARM. BACK-PULL 2.5" PIPE FROM 148.0' BGS TO G.S.
1056	RAN 2.5" CASING WITH NEW KNOCK OUT TIP FROM G.S. TO 66.0' BGS.
—	EXITED FARM.
1130	LUNCH
1200	M. GARDNER ONSITE. OFFSITE AT 1230 HRS.
1230	DRESS AND ENTER FARM. DRIVE 2.5" FROM 66.0' BGS TO 128.0' BGS
—	SECURED SITE AND EXITED SITE.
1430	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1515	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Ehrgott
NCO: Sharp, Rivera, BUST, KANER
HPT: Widdis, Young, MINCEY
FWS: Clark

WEATHER: 95F, sunny and breezy

DOWNTIME: 55 MINS.- HPT'S

DISCARDED ITEMS: 2- KNOCK OUT TIPS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. SKOGLIE
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E Skoglie **DATE:** 8/19/09

ENERGYSOLUTIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling #C7158

DATE: 8-19-09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 83

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7158 Tubing (2 5/8) @ 0 to ~~58.3~~ 56.3 DCR ft bgs; S.U. 2.0'

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. _____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. _____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0530	E.S.F.S. Safety Meeting
0545	Drive to Sx Tank Farm
0615	Arrive at Sx Tank Farm (Standby for Support), Pre-Job.
0715	Drive to Smurf to see (511 Rev 2).
0730	Arrive at SX Tank Farm
0731	Start moving equipment to sample hole #C7158, Rig, HPT's re-
—	surveyed the 2 5/8 drill string, set up RBA
1030	Start drilling on hole #C7158. Drove to 32' bgs with 2.3' s.u taking
1200	Lunch
1230	Start drilling on C7158.
220	Drilled dual wall to 56.3, cleaned up area, washed up.
230	Drive to E.S.F.S.
300	End of shift/Timecard

N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: Rick Sharp Greg Seidel
HPT: Mike Wittis Matt Young
FWS: Tom

WEATHER: 100° F Sunny, calm

DOWNTIME: 1 hr. For pre-job

DISCARDED ITEMS: 2-36" pipe jaws

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Mark A. Repko
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Mark A. Repko

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie DATE: 8/20/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drive to probe installation depth, install probes and decommission #C7185 | **DATE:** 08/19/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 81

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY | **SITE/EQUIPMENT INSPECTION:** (Yes) No | *HHU CASE#1* *HHU CAT #2* *HHUXL#3*

Sample #'s *Interval* *%*

1.
2. N/A
3.
4.

BOREHOLE SUMMARY

1.) *Borehole #* C7185 *Tubing* (2 1/2") @ 128' *to* GS *ft bgs; S.U.* N/A
2.) *Borehole #* C7185 *Tubing* (2 1/2") @ GS *to* 157' *ft bgs; S.U.* 3.0'
Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. N/A
2.
3.

TIME	WORK SUMMARY
0500	SAFETY MEETING IN OFFICE. TOPIC: BE PREPARED FOR THE UNEXPECTED.
0540	TRAVEL TO "SX" FARM.
0610	STANDBY FOR HPT'S.
0710	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0732	DRIVE 2.5" PIPE FROM 128.0' BGS TO 157.0' BGS. ~3.0' OF SOIL IN
—	PIPE. TIP WILL NOT KNOCK OUT. SLIDE HAMMER AND CLEAN OUT TOOL WAS
—	UNSUCCESSFULLY USED TO REMOVE SOIL.
0902	BACKPULLED 2.5" CASING FROM 157.0' BGS TO G.S. EXITED FARM.
1100	LUNCH.
1130	DRESS AND ENTER FARM. DRIVE 2 1/2" PIPE WITH NEW KNOCK-OUT TIP FROM G.S.
—	TO T.D. AT 157.0' BGS. SECURED SITE AND EXITED FARM
1410	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1530	END OF SHIFT.

N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Ehrgott, Weakley
NCO: Sharp, Seidel
HPT: Widdis, Young, MINGEY
FWS: Clark

WEATHER: 100F, sunny and hot!

DOWNTIME: 1 HR. - HPT'S

DISCARDED ITEMS: 6 - LYNCH PINS

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mike Walkup

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/20/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling #C7158 **DATE:** 08/20/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 84

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA-09-001 Rev 1**

SAMPLING SUMMARY

Sample #'s	Interval	%
1. See notes		
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No **HHU CASE#1** (HHU CAT #2) **HHUXL#3**

BOREHOLE SUMMARY

Borehole #C7158 Tubing (2 5/8) @ ~~58.3~~ 56.3 DCL to 100 ft bgs; S.U. 2.3

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ____

Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. N/A		
2.		
3.		

TIME	WORK SUMMARY
0530	Energy Solutions Safety meeting, Topic: Be safe
0545	Drive to Sx Farm.
0615	Arrive at Sx Farm. (Standby)
0710	Get ready to drill equipment inspection, start drilling to 87' bgs.
0915	Broke 2 1/8 drive sub. Got new one continue work at #C7158
1005	Drove Dual wall to 87' bgs, pulling inner tip, Install sampler.
1129	Driving Sample end Time 11:29 am, pulling sampler to surface. (87' bgs to 89' bgs)
1200	Sampler out of hole Taking Lunch, - Sample 100% at 87' to 89' bgs.
1230	Run Dummy tip in, Start Driving to next interval 124 bgs
215	Drived dual wall to 100' bgs end of day, wash up,
230	Drive to E.S.F.S.
300	End of shift / Timecard
notes:	
	C7158 I-001 (87' to 89' bgs)
	B206R8 A,B,C = 100% total
	B206R9
	VOA-004-014
	VOA-004-013
	N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: Sharp, Seidel, Rivera
HPT: Widdis, Young, Mincey
FWS: Clark

WEATHER: 103F, sunny and hot!

DOWNTIME: Waiting for press 1 hr.

DISCARDED ITEMS:
1-Samplers shoe
1-2 5/8 Drive head

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Mark Repko
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mark A. Repko

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E Skoglie **DATE:** 8/24/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: INSTALL MOISTURE PROBES AND DECOMMISSION #C7185 DATE: 8/20/09

LOCATION: Hanford Site, SX Tank Farm EXCAVATION: DAN-3650 U-DIG #: 9061396 REPORT #: 82

START CARD NO. A118512 DECOMMISSION NO. S27649 RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1. N/A		
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No HHU CASE#1 HHU CAT #2 (HHUXL#3)

BOREHOLE SUMMARY

Borehole # C7185 Tubing (2½") @ 157' to 0' ft bgs; S.U. ____

Borehole # ____ Tubing ( ) @ to ft bgs; S.U. ____

Borehole # ____ Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0530	PAPER WORK, TIME CARD, SAFETY TOPIC: MAKE TODAY A SAFE ONE.
0545	TRAVEL TO SX-FARM
0620	ON STANDBY FOR HPT'S. PRE JOB & SIGN ROSTER.
0730	ENTER SX-FARM, C7185 BACKPULL AND KNOCK OUT TIP ADD BENTONITE,
—	SAND. SET PROBE @ 141' TO 143' bgs ADD SAND & SALT. BACKPULL TO
—	128' bgs ADD WATER.
0930	EXIT FARM (BREAK)
1010	ENTER FARM & CONTINUE DECOMMISSIONING TO 61' bgs. BACKPULLED
—	TO 54' bgs. ADD SAND AND SET PROBE @ 56' TO 68' bgs ADD SAND & SALT
—	BACKPULL TO 40' bgs
1150	ADD WATER & EXIT FARM
1200	LUNCH
1245	ENTER FARM, CONTINUE DECOMMISSIONING TO GROUND SURFACE.
1460	C7185 PROBE INSTALLATION & DECOMMISSIONING COMPLETED. SECURE SITE &
—	EXIT FARM.
1420	TRAVEL TO OFFICE, DUE PAPER WORK
1500	END OF SHIFT.

NOT USED INC

OPERATOR/LICENSE:
ES SUPPORT: WAIKUP, EHRBOTT, WEAKLEY
NCO: SHARP, SEIDEL, RIVERA
HPT: WIDDIS, YOUNG, MINCEY
FWS: CLARK

WEATHER: 103°F SUNNY & HOT

DOWNTIME: 1HR 20MIN

DISCARDED ITEMS:
1-150' PROBE
1-100' PROBE
2- CONTAINERS SALT
2- BAGS OF SAND
9- BAGS OF BENTONITE

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE EHRBOTT
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Mike Ehrbott

REVIEWED BY: David E. Sloglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Sloglie DATE: 8/24/09

ENERGYSOLUTIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling - C-7158

DATE: 08/24/09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 85

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7158 Tubing (2 5/8") @ 100' to 124' ft bgs: S.U. 2.3

Borehole # N/A Tubing ( ) @ to ft bgs: S.U.

Borehole # N/A Tubing ( ) @ to ft bgs: S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = working safely)
05:45	Travel to SX farm
06:20	Pre-job at SX farm - stand-by for RCTs
07:25	Acc in
07:35	Rig inspection, fuel generators, drive C-7158 from
—	100' to 124' (sample depth., Back-pull dummy
—	tip. survey out.
10:00	stand-by for samplers
11:30	Lunch
12:00	continue stand-by for samplers, clean-up, pick-up
14:30	protective covers and 150' probe at "Green Hut".
—	Travel to office, paperwork and time cards
15:00	End of Shift

NA

OPERATOR/LICENSE: Olson - #1217

ES SUPPORT: Amos

NCO: Sharp - Rivera, Siebell

HPT: Young - Widdus.

FWS: Clark

WEATHER: 85° F sunny

DOWNTIME: 6 hr for sampling support + RCT

DISCARDED ITEMS: 1- Dummy Tip.

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D. E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: Daniel E. Skoglie DATE: 8/25/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Begin fishing activities at #C7192A | **DATE:** 08/24/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 83

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA-09-001 Rev 1**

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

BOREHOLE SUMMARY

Borehole # C7192A *Tubing* (2 1/8") @ 47' *to* N/A *ft bgs; S.U.* N/A

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

Borehole # N/A *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: LOOK SAFE, WORK HARD.
0540	TRAVEL TO "SX" FARM.
0615	STANDBY FOR HPT'S.
0730	PRE-JOB AND RCE AT "SX" FARM.
0746	DRESS AND ENTER FARM. FUEL AND INSPECT HHUXL. NO PROBLEMS NOTED.
0830	MOVE HHUXL AND SUPPORT EQUIPMENT TO #C7192A AND SET-UP.
0905	EXIT FARM.
0920	DRESS AND ENTER FARM. RUN TAP IN AND UNSUCCESSFULLY TRIED
—	TO FISH 2 5/8". TAP KEPT PULLING. SECURED SITE AND EXITED FARM.
1030	STANDBY FOR NEW FISHING TOOLS. Decision made to decommission (Sydnor).
1130	LUNCH.
1200	STANDBY FOR NEW FISHING TOOLS. TRAVEL TO ENW AND THEN TO
—	OFFICE. COMPLETE PAPERWORK AND TIMECARD.
1520	END OF SHIFT.

N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Ehrgott, Weakley
NCO: Sharp, Seidel, Rivera
HPT: Widdis, Young, Mincey
FWS: Clark

WEATHER: 88F, sunny and mild

DOWNTIME:
1 1/4 HRS. - HPT'S
5 HRS. - FISHING TOOLS

DISCARDED ITEMS: NONE.

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE L. WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mike L. Walkup

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/25/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling, C-7158, decommissioning

DATE: 08/25/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 86

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B206TD	124-126	100%
2. B206T1	124-126	100%
3. B206T2	141-143'	100%
4. B206T3	141-143'	100%

BOREHOLE SUMMARY

Borehole # C-7158 Tubing (2 5/8") @ 124' to 143' ft bgs: S.U. —

Borehole # C-7158 Tubing (2 5/8") @ 143' to 100' ft bgs: S.U. 2.3'

Borehole # N/A Tubing (/) @ / to / ft bgs: S.U. /

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office, (subject = compressed air)
05:45	Travel to SX farm
06:20	Pre-job at SX farm
06:30	Stand-by for samplers, inspect rig
07:30	Samplers on site, install sampler to 124' drive
—	sample #B206T1 (Liners) + #B206T1 (shoe) from 124' to 126' at
—	8:00 A.M., 100% recovery, pulled sampler, processed sample.
—	installed dummy tip, drove C-7158 from 126' to 141', pulled
—	dummy tip, installed 2nd sampler, drove sample #B206T3
—	(Liners) + B206T2 (shoe) from 141' to 143' at 11:30,
—	Pulled and processed sample, survey out.
12:30	Lunch
~~[illegible]~~	Stand-by for RCTS
13:00	Back-pull C-7158 from 143' to 100',
—	clean-up, survey out
14:30	Travel to office, paperwork and time cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson - #1217

ES SUPPORT: Amos

NCO: Sharp, Rivera, Siedell

HPT: Young, widdus

FWS: Clark

WEATHER: 85° F Breezy

DOWNTIME: .5hr for RCTS 1hr for samplers

DISCARDED ITEMS:
6 sample liners
8 'O' Rings
2 nylatrat washers
6 Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev 0.56472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 8/26/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommission #C7192A Install Surface protection. **DATE: 08/25/09**

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #: 84**

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No **HHU CASE#1** **HHU CAT #2** (HHUXL#3)

BOREHOLE SUMMARY

Borehole #C7192A Tubing (2 5/8") @ 117' to 0' ft bgs; S.U. N/A

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

Borehole # N/A Tubing ( ) @ to ft bgs; S.U. ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0500	SAFETY MEETING AT OFFICE. TOPIC: CLEANING WITH COMPRESSED AIR.
0545	TRAVEL TO "SX" FARM.
0620	STANDBY FOR HPT'S.
0715	PRE-JOB AT "SX"
0730	PASS AND ENTER FARM. INSPECT HHUXL. NO PROBLEMS NOTED.
0745	ABANDON 2 5/8" PIPE FROM 107.0' BGS TO 20.0' BGS WITH BENTONITE.
—	4 SKS. WERE USED. ABANDONED 2 5/8" FROM 20.0' BGS TO G.S. WITH
—	CEMENT. 1 80# SACK WAS USED. BOTTOM OF CASING IS 117.0' BGS. TOP
—	OF CASING IS 7.0' BGS. HOLE WAS TAGGED AT 107.0' BGS.
0832	PRESSURIZED HHUXL AND ALL SUPPORT EQUIPMENT TO SOUTH GATE TO
—	BE SURVEYED OUT.
0940	HPT'S SURVEYING ALL EQUIPMENT OUT OF FARM. INSTALLED MONUMENTS
—	ON #C7185 AND #C7191. EXITED FARM.
1000	STANDBY FOR EQUIPMENT SURVEY'S. TRAVEL TO ENW AND GET TRAILER
—	FOR TOWING HHU UNITS.
1130	LUNCH AT ENW.
1200	TRAVEL TO "SX" WITH TRAILER. UNHOOKED AND STAGED AT SOUTH GATE.
—	HHUXL SURVEYED AND RELEASED FROM RBA. MOVED HORSE TRAILER
—	FROM "C" FARM TO "SX" FARM TO LOAD MATERIALS FOR ENW JOB.
1410	TRAVELED TO OFFICE. COMPLETED PAPERWORK AND TIMECARD.
1500	END OF SHIFT.
	N/A

OPERATOR/LICENSE: #3005
ES SUPPORT: Walkup, Ehrgott, Weakley
NCO: Sharp, Seidel, Rivera
HPT: Widdis, Young
FWS: Clark

WEATHER: 86F, sunny and breezy

DOWNTIME: 65 MINS. - HPT'S

DISCARDED ITEMS:
4 - SKS. BENTONITE.
1 - 80# SK. CEMENT.
2 - Surface protection

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: MIKE WALKUP
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/26/09

TANK FARM CONTRACTOR RADIOLOGICAL SURVEY REPORT

RSR No. COO 005881

Date	Start/Stop Time	Area/Location	RWP/Rev.
8/25/09	0830 / 1030	200W/241-SX	co-511, Rev 002

Purpose of Survey

- ☐ Material Release – Confidence Level
  - ☐ 67% ☐ 95%
- ☐ RAM Shipment:
- ☐ Required Task:
- ☒ Job Coverage: TFC-WO-0945
- ☐ Other:

Description of Work/Comments:

Release survey of the Beretta direct push drill rig (HHU XL) per survey plan no. 2009-CO-010, Rev. 0.

Items 2 thru 12 were areas of concentration.

No.	Description	Dose Rate Measurements (Note[1] F = Field (≥30 cm) C = Contact (≤1 cm))								Contamination Measurements							
										Direct Gross cpm/PA		Background cpm		Total dpm/100 cm²		Removable dpm/100 cm²	
		Dist. (cm) Note[1]	WO mR/hr	WC mR/hr	CF β	CF γ	Neutron Dose mrem/hr	Shallow Dose mrem/hr	Deep Dose mrem/hr	βγ	α	βγ	α	βγ	α	βγ	α
1	LAW and direct survey of accessible areas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50	0	50	0	<5000	<100	<1000	<20
2	Engine Compartment									50	0	50	0	<5000	<100	<1000	<20
3	Air Intake									50	0	50	0	<5000	<100	<1000	<20
4	Levers and Controls									50	0	50	0	<5000	<100	<1000	<20
5	Hydraulic Leveling Pads									50	0	50	0	<5000	<100	<1000	<20
6	Hydraulic Hoses and Connections									50	0	50	0	<5000	<100	<1000	<20
7	Fluid Fill Points									50	0	50	0	<5000	<100	<1000	<20
8	Undercarriage									50	0	50	0	<5000	<100	<1000	<20
9	Tracks and Track Pinions and Gears									50	0	50	0	<5000	<100	<1000	<20
10	Drill Motor									50	0	50	0	<5000	<100	<1000	<20
11	Mast									50	0	50	0	<5000	<100	<1000	<20
12	Hydraulic Rams									50	0	50	0	<5000	<100	<1000	<20
N/A	N/A									N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

BD-6003-343 (REV 3)

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommissioning C-7158, Probe installation C-7157

DATE: 8/26/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 87

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s Interval %

1. NA
2.
3.
4.

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

BOREHOLE SUMMARY

Borehole # C-7158 Tubing (2 5/8") @ 100' to 0 ft bgs; S.U. \

Borehole # C-7157 Tubing (2 1/2") @ 160' to 80' ft bgs; S.U. 2.3'

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring # Interval Type

1. NA
2.
3.

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = working together)
05:45	Travel to SX Farm
06:20	Pre-job at SX (stand-by for Package)
07:20	inspect rig, Fuel rig and generator, Back-pull C-7158
—	from 100' to 0', Back-fill with bentonite to surface,
—	move and set-up on C-7157, survey out.
10:00	Gather materials for probe installation, Back pull
—	C-7157 from 160' to 156', Knock out expendable tip,
—	Back pull from 156' to 132', back-fill with bentonite from
—	160' to 144' (tag), sand to 142' (tag), install moisture probe
—	from 142' to 140', Top of sand 135', install saline solution,
—	survey out.
12:00 ~~12:00~~	Lunch
~~12:30~~	stand-by for RCTs
13:00	Back-pull C-7157 from 132' to 80', set second
—	probe from 89' to 87' sand from 91' (tag) to 82' (tag)'
~~14:30~~	installed saline solution, clean-up, survey out
14:30	Travel to office, paperwork and time cards
15:00	End of shift.
	NA

OPERATOR/LICENSE: Olson / 7217

ES SUPPORT: Repko

NCO: Sharp - Rivera, Siedell

HPT: Young - Widdus

FWS: Clark

WEATHER: 91 F Sunny

DOWNTIME: 1 hr for package .5 hr for RCTs

DISCARDED ITEMS:
1 - 150' moisture probe
1 - expendable tip
2 - sack sand / 2 salt
10 - sacks bentonite
1 - 100' moisture probe

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 8/27/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Mobilize HHUXL to #C7157 and begin probe installation.		**DATE:** 08/26/09
LOCATION: Hanford Site, SX Tank Farm	**EXCAVATION:** DAN-3650 **U-DIG #:** 9061396	**REPORT #:** 85
START CARD NO. A118512	**DECOMMISSION NO.** S27649	**RWP:** CO-511 AHA-09-001 Rev 1
SAMPLING SUMMARY	**SITE/EQUIPMENT INSPECTION:** Yes No	*HHU CASE#1* *HHU CAT #2* *HHUXL#3*

Sample #'s *Interval* *%*

1.
2.
3.
4.

NA

BOREHOLE SUMMARY

Borehole # _____ *Tubing (* *) @* *to* *ft bgs: S.U.* _____

Borehole # _____ *Tubing (* *) @* *to* *ft bgs; S.U.* _____

Borehole # _____ *Tubing (* *) @* *to* *ft bgs; S.U.* _____

NA

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1.
2.
3.

NA

TIME	WORK SUMMARY
0530	AT office, Hold Safety meeting and discussed working together
0545	Head to SSX Farm
0615	waiting on RCT's
0700	Hold prejob, Plan is to move HHUXL#3 To set probe
0730	Per Bill Clark's direction The HHUXL#3 is to be
—	moved off site and will not do any work today.
0745	Help Mike walkup move generators to Energy Northwest
—	Yard and make up probe's for kelly
1100	Lunch
1130	Get Stuff together for walkups site
1200	waiting for RCTS to get equipment surveyed out
	of SX Farm
1300	RCTS on site Survey equipment out and Load in
	horse trailer
1430	Head to office
1500	END of shift

NA

OPERATOR/LICENSE: #
ES SUPPORT: Amos, Weakley
NCO: Sharp, Seidel, Rivera
HPT: Widdis, Young
FWS: Clark

WEATHER: 91F, sunny and warm

DOWNTIME: 1hr. 45min. waiting on RCT

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Olin Amos
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: [signature]

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/27/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Finish decommissioning #C7157 and begin sampling at #C7156 | **DATE:** 08/27/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 88

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	N/A	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: (Yes) No | *HHU CASE#1* (*HHU CAT #2*) *HHUXL#3*

BOREHOLE SUMMARY

Borehole # C7157 *Tubing* (2½) @ 80' *to* G.S. *ft bgs; S.U.* N/A

Borehole # C7156 *Tubing* (2⅝) @ 0 *to* 50' *ft bgs; S.U.* 2.3'

Borehole # _____ *Tubing* ( ) @ *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0530	Safety meeting at E.S.F.S., Fuel work truck
0600	Drive to SX Tank Farm
0630	Arrive at SX Tank Farm
0700	Equipment inspection, Fuel rig. Rory to Ace in.
0730	Begin decommissioning #C7157
0912	Finished decommissioning hole #C7157 from 80' to G.S.
0913	move HHU Rig #2 to hole #C7156 and set up zone, start drilling
1030	Water break
1045	Start drilling on hole #C7156, Drilled down to 28' bgs, Taking Lunch
1200	Lunch
1230	Begin drilling on hole #C7156 @ 28' bgs.
130	Head get hot letting it cool down, shade and mists are going.
145	Start driving drove to 50' bgs. end of day 200, cleanup drive to E.S.F.S
300	End of shift, Timecard

OPERATOR/LICENSE: #3012
ES SUPPORT: Repko, Steffler
NCO: Rivera, Sharp, Seidel
HPT: Widdis, Young
FWS:Clark

WEATHER: 97F, sunny and hot

DOWNTIME: 1hr for Presob

DISCARDED ITEMS: 6 lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Mark Repko
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Mark A. Repko

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/27/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-27-09 HHU#: Rig 2 Hour Meter: 4759 Operator Mark Repko, Rory Steffler

Daily Maintenance Inspection	Good	Correction Needed
1. Clean & inspect feed rails.	✓	
2. Inspect welds, pins and subs for cracks and/or failure points.	✓	
3. Remove rocks and debris from inside the feed structure.	✓	
4. Grease the drive head.	✓	
5. Wipe down the cylinder rod.	✓	
6. Check drive chain tension.	✓	
7. Grease front and rear sprockets.	✓	
8. Check hydraulic hoses for damage and leaks.	✓	
9. Inspect rotary head to ensure it's secure and operating correctly.	✓	
10. Inspect belts and safety guards.	✓	
11. All safety labels are legible.	✓	
12. Emergency STOP and switches are in good operating condition.	✓	
13. Inspect fluid levels.	✓	
14. Fire extinguishers are operational and current on inspection.	✓	
15. Break out wrench and heel and jaws are in good working order.	✓	
16. Visually check hoist. Spool out and inspect rope on hoist.	✓	
17. Check winch for leaks. Clean and grease brake assembly if needed.	✓	
18. Check brakes and back up alarm.	✓	
19. Check tracks, rollers, tires etc.	✓	

COMMENTS: Head walks / Probably worn guides

NO UNAUTHORIZED PERSON(S) IN HHU AREA !!!!!
HYDRAULIC HAMMER UNIT SPECIFICATION INFORMATION

A rod fed hydraulic cylinder provides the force to retract and extend the drill head. Retracting the cylinder moves the drill head forward on the feed. Extending the cylinder retracts the drill.

The drilling feed force is 320 IBF (147 kilogram force) per 100 psig (6.8 bar) up to a maximum of 8100 IBF (3580 kg-f) at 2500 psig (170 bar) Retraction force out of the hole is 480 IBF (218 kg-f) per 100 psig (6.8 bar) up to a maximum 12,000 IBF (5466 kg-f) at 2500 psig (170 bar). NOTE: Do not exceed 2500 psig (170bar) during retraction of the drill head or bowing of the drill head may occur.

HCFH feeds are designated by length and application. HBM5012 designates a feed having 5 feet (1.524 m) of total drill head travel. This allows the use of 4 foot (1.219 m) drill pipe.

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Mobilize HHUXL to ENW yard and begin maintenance activities | **DATE:** 08/27/09

LOCATION: Hanford Site, SX Tank Farm | **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 | **REPORT #:** 86

START CARD NO. A118512 | **DECOMMISSION NO.** S27649 | **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY | **SITE/EQUIPMENT INSPECTION:** (Yes) No | *HHU CASE#1* *HHU CAT #2* (*HHUXL#3*)

Sample #'s *Interval* *%*

1.
2. N/A
3.
4.

BOREHOLE SUMMARY

Borehole # _____ *Tubing (* *)@* *to* *ft bgs; S.U.* ____
Borehole # _____ *Tubing (* *)@* N/A *to* *ft bgs; S.U.* ____
Borehole # _____ *Tubing (* *)@* *to* *ft bgs; S.U.* ____

GEOPHYSICAL LOGGING

Boring # *Interval* *Type*

1. N/A
2.
3.

TIME	WORK SUMMARY
0630	AT office, safety meeting,
0645	Head to Hertz to get dump truck
0800	AT SX load Barretta
1100	AT Energy Solutions yard unload Barretta and begin maintance
1130	Lunch
1200	Go to town to pickup parts for the Barretta
1500	AT office - end of shift

N/A

OPERATOR/LICENSE: #
ES SUPPORT: Amos, Weakley
NCO: N/A
HPT: N/A
FWS:N/A

WEATHER: 97F, sunny and hot

DOWNTIME: N/A

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Olin Amos
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Olin Amos

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E. Skoglie **DATE:** 8/27/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling C-7156

DATE: 8/28/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 89

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: Yes No

HHU CASE#1 HHU CAT #2 HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.	NA	
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7156 Tubing (2 5/8") @ 50' to 92' ft bgs; S.U. 2.3'

Borehole # NA Tubing ( ) @ to ft bgs; S.U.

Borehole # NA Tubing ( ) @ to ft bgs; S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.		
2.	NA	
3.		

TIME	WORK SUMMARY
05:30	safety meeting at office (Subject = buckle up)
05:50	Travel to SX farm
06:30	Pre-job at SX farm
07:00	inspect Rig, fuel generators, drive C-7156 from 50' to
—	92' (Let head cool 3 times), install surface
—	protection at C-7153 and C-7157 while letting head
—	cool, Back pulled inner rod (dummy rip) and
—	prepare to sample monday, Clean-up, put away equipment.
12:00	Lunch
12:30	stand-by for samplers, travel to office, paperwork
—	and Time cards
14:00	End of shift

NA

OPERATOR/LICENSE: Olson #1217

ES SUPPORT: Repko, Ehrgitt

NCO: Rivera, Siedell

HPT: Laurendrea, Mincey

FWS: Clark

WEATHER: 95°F sunny

DOWNTIME: 1.5 hr for samplers

DISCARDED ITEMS:
1 - Drive head Pin
3 - Nylatrol washers
12 - Lynch Pins
2 - surface Protection
2 - bags concrete

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 8/31/09

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling C-7156

DATE: 8/31/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 90

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

Sample # 's	Interval	%
1. B206R2	92'-94'	100%
2. B206R3	92'-94'	100%
3. N/A		
4. N/A		

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 HHU (CAT #2) HHUXL#3

BOREHOLE SUMMARY

Borehole # C-7156 Tubing (2 5/8") @ 92' to 126' ft bgs: S.U. 3

Borehole # NA Tubing ( ) @ to ft bgs: S.U.

Borehole # NA Tubing ( ) @ to ft bgs: S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = vehicle cleanliness)
05:45	travel to SX farm
06:20	Pre-job at SX farm, stand-by for samplers
07:30	Arr in, Rig inspection, fuel rig and generators, install
—	sampler, drive sample # B206R2 (shoe) + B206R3 (Liners)
—	from 92' to 94' at 08:30, Pulled and processed sample
—	(100% Recovery), installed dummy tip, Drove C-7156 from
—	94' to 116' letting head cool once, survey out.
11:30	Lunch
12:00	Drive C-7156 from 116' to 126', Back-pull dummy
~~13:30~~ K.O	tip, put away equipment, survey out.
13:30	Stand-by for samplers, prepare to sample in morning.
—	Paperwork and clean-up.
14:30	Travel to office, paperwork, time cards
15:00	End of shift

NA

OPERATOR/LICENSE: Olson #1217

ES SUPPORT: Repko

NCO: Sharp, Rivera

HPT: Young, Widdus

FWS: Clark

WEATHER: 91° F Sunny

DOWNTIME: 2 hr for samplers

DISCARDED ITEMS:
3 sample liners
2 Nylatrol washers
4 O' Rings
10 Lynch Pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Ol

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 9/01/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling C-7156

DATE: 9/1/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 91

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: Yes No

HHU CASE#1 HHU CAT #2 HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1. B206R4	126-128	100%
2. B206R5	126-128	100%
3. B206R6	140-142	100%
4. B206R7	140-142'	100%

BOREHOLE SUMMARY

Borehole # C-7156 Tubing (2 5/8) @ 126' to 142' ft bgs; S.U. 3

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = vehicle logs)
05:45	Travel to SX farm
06:20	Pre-job at SX farm, stand-by for all personell (samplers
07:20	inspect rig, fuel rig and generators, Drive sample
—	#B206R4 (shoe) + B206R5 liners at 8:10 from 126'
—	to 128', pulled and processed sampler, 100% recovery, installed
—	dummy tip, drove dual wall from 128' to 140', Back-
—	pulled dummy tip, installed sampler to sample
—	depth + set up to sample.
12:00	Lunch
12:30	Put away equipment, Pick up arm sleeves, drive sample
—	# B206R6 (shoe) + B206R7 (Liners) from 140' to 142' at
—	12:45, Pulled and proccessed sample (100% recovery) clean-up
—	rod threads, put away dual wall equipment, survey out.
14:30	Travel to office, paperwork, time cards.
15:00	End of shift

NA

OPERATOR/LICENSE: Olson #1217

ES SUPPORT: Repko

NCO: Sharp, Rivera

HPT: ~~Shaw~~ Widdus, Young

FWS: Clark

WEATHER: 97° F Sunny

DOWNTIME: 1 hr for sampling support

DISCARDED ITEMS:
6 sample liners
6 'O' Rings
8 Lynch Pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Ol

REVIEWED BY: L.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 9/02/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommissioning C-7156 / Probe installation C-7155

DATE: 9/2/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 92

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT#2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole #: C-7156 Tubing (2 5/8") @ 142' to 0' ft bgs; S.U. \

Borehole #: C-7155 Tubing (2 1/2") @ 156' to 80' ft bgs; S.U. 2,3

Borehole #: NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

WORK SUMMARY

TIME	WORK SUMMARY
05:30	safety meeting at office (subject = welding hands)
05:50	Travel to SX farm
06:30	Pre-job at SX farm (stand-by for RCTS - RCTS at ISMS's meeting)
07:30	Rig inspection, fuel generators back pull C-7156 from
—	140' to 0', back fill withe bentonite, tag and back-fill
—	with bentonite at 30' intervals, move and set up on C-7155,
—	Back pulled 2½" rod from 156' to 152', knock-out expendable
—	tip, gather probes and materials., Back pull C-7155
—	from 152' to 116', installed bentonite to 130' (tag) sand to 128' (TSS)
—	installed moisture probe from 126' to 128', top of sand 121' (TSS),
—	added saline solution, clean up, survey out
12:30	Lunch
13:00	Back-pull C-7155 from 116' to 80', install bentonite,
—	clean threads on pipe and put away pipe in bed rack.
14:20	Travel to office, paperwork and time cards
15:00	End of Shift

NA

OPERATOR/LICENSE: Olson / #1217
ES SUPPORT: Repko
NCO: Sharp - Rivera
HPT: Young - Siddons
FWS: Clark

WEATHER: 96 °F Sunny

DOWNTIME: 1 hr for RCTS (ISMS meeting)

DISCARDED ITEMS:
1 - 150' Probe
1 - expandable tip
1 - sack sand
12 - sacks bentonite
1 - salt

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D E Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E Skoglie DATE: 9/3/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation c-7155

DATE: 9/3/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 93

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

Sample # s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7155 Tubing (2 1/2") @ 80' to \ ft bgs; S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

Borehole # _____ Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject = hot sampler on Sonic Rig)
05:45	Travel to SX farm
06:20	Pre-job at SX farm (stand-by for Lightening (A0P014))
07:00	stand-by for wind - gather information for well
—	tags, pick up materials at chem storage, clean up
—	while standing by.
12:00	Lunch
12:30	Continue stand-by for windy conditions (A0P008)
~~14:00~~	clean-up, secure site.
14:00	Travel to office, paperwork and time cards
15:00	End of shift.
	NA

OPERATOR/LICENSE: Olson #1217

ES SUPPORT: Repko

NCO: Sharp - Rivera

HPT: Young - Waddus

FWS: Clark

WEATHER: 87 F Cloudy / Breezy

DOWNTIME: 9 hr for Lightening + wind

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E Skoglie DATE: 9/03/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Probe installation C-7155

DATE: 9/8/09

LOCATION: Hanford Site, SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 94

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SAMPLING SUMMARY

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT.#2) HHUXL#3

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C-7155 Tubing (2 1/2") @ 80' to 0' ft bgs: S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs: S.U. \

Borehole # NA Tubing (\ ) @ \ to \ ft bgs: S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	safety meeting at office (subject = suicide)
05:50	Travel to SX farm
06:30	Pre-job at SX farm, (stand-by for all personell 1 hr)
08:00	Monthley safety meeting Acc inc
—	Travel to Smart bldg to re-zero pencil CRCs replace out
—	of cal. air samplers.
08:30	Back-pull C-7155 from 80' to 70', installed bentonite to
—	83' (tag), sand to 81' (tag), set 2nd moisture probe from
—	81' to 74' top of sand 74' (tag), back-pull casing from
—	70' to 48', allow pipe to dry, back pull from 48' to
—	0', install bentonite to surface, clean rods and
—	put away in racks.
12:00	Lunch
12:30	Survey equipment out of RBA, Move generators
—	up to horse trailer, drain and haul misters
—	to green hut, survey out garbage and hauled
—	to dumpster.
14:20	Travel to office, paperwork and time cards.
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson #1217
ES SUPPORT: Repko
NCO: Sharp - Rivera - Siedell
HPT: Young - Widdus
FWS: Craft.

WEATHER: 89°F Partly cloudy

DOWNTIME: .5 hr for RCPs

DISCARDED ITEMS:
1 - 100' moisture Probe
4 - sacks bentonite
1 - sack sand.

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie DATE: 9/9/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Survey out Rig, surface Protection, wash rig **DATE:** 9/9/09

LOCATION: Hanford Site, SX Tank Farm **EXCAVATION:** DAN-3650 **U-DIG #:** 9061396 **REPORT #:** 95

START CARD NO. A118512 **DECOMMISSION NO.** S27649 **RWP:** CO-511 **AHA**-09-001 Rev 1

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

SITE/EQUIPMENT INSPECTION: Yes No **HHU CASE#1** **HHU CAT #2** **HHUXL#3**

BOREHOLE SUMMARY

Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \
Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \
Borehole # NA Tubing (\ ) @ \ to \ ft bgs; S.U. \

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting at office (subject - huffing)
05:50	Travel to SX farm.
06:30	Pre-job at SX farm
07:30	Survey equipment and rig out of RMA
—	move pad # into farm, Survey rig out of RMA,
—	Dig in and set surface protection at C-2155,
—	Mob rig to De-con Pad at 200 East,
—	Drop List for tags at Rigging loft.
12:00	Lunch
12:30	Pick up water tank, fill tank at treatment plant,
—	haul to de-con pad, transfer water to tank on pressure
—	washer, set up plastic under rig, pressure wash Cat Rig
—	#2, Put away equipment, picked up tags
—	at Rigging loft
14:20	Travel to office, paperwork, time cards
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson # 1217
ES SUPPORT: Repko
NCO: Sharp, Rivera, Siedell
HPT: Young, Widdus
FWS: Craft

WEATHER: 83°F cloudy, sun

DOWNTIME: NA

DISCARDED ITEMS:
1 - surface Protection
1 - sack concrete mix

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson
TITLE : *ES TECHNICAL PREPARER*
SIGNATURE: Kelly Olson

REVIEWED BY: D.E. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: David E Skoglie **DATE:** 9/9/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Pressure wash Rig, install tags, rig inspection

DATE: 9/10/09

LOCATION: Hanford Site. SX Tank Farm

EXCAVATION: DAN-3650 U-DIG #: 9061396

REPORT #: 96

START CARD NO. A118512

DECOMMISSION NO. S27649

RWP: CO-511 AHA-09-001 Rev 1

SITE/EQUIPMENT INSPECTION: (Yes) No

HHU CASE#1 (HHU CAT #2) HHUXL#3

SAMPLING SUMMARY

Sample #'s	Interval	%
1.	NA	
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # NA Tubing ( ) @ to ft bgs: S.U.

Borehole # NA Tubing ( ) @ to ft bgs: S.U.

Borehole # NA Tubing ( ) @ to ft bgs: S.U.

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1.	NA	
2.		
3.		

TIME	WORK SUMMARY
05:30	Safety meeting and discussing upcoming work (safety topic -
~~07:1~~	Hydraulic spill)
07:15	Travel to SX farm,
07:40	Pre-job at SX farm
08:00	Travel to De-con Pad, Finish pressure washing cat
—	Rig #2, pick up washers for tags, at warehouse,
—	transport (road) Rig # 2 from 200 East back to SX farm,
—	set up on plastic for maintenance. Dress into whites,
—	install well tags on C-7185 an C-7191, move and
—	stage 2 5/8" + 2 1/2" Pipe from SX Farm to S-farm,
—	survey out.
12:00	Lunch
12:30	install tags on C-7153, C-7155, and C-7157, inspect
—	hoses and rig, disassemble hose carrier in order
—	to change worn hose. clean up and put away
—	tools and materials
14:20	Travel to office, paperwork and time cards
15:00	End of shift
	NA

OPERATOR/LICENSE: Olson #1217

ES SUPPORT: Repko

NCO: Sharp, Rivera, Siedell

HPT: Mincey, Young

FWS: Craft

WEATHER: 59 F

DOWNTIME: N/A

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-027 Rev. 0/36472 Task 3

REPORT BY: Kelly Olson

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Kelly Ol

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 9/11/09

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APPENDIX D

SMALL DIAMETER GEOPHYSICAL LOGGING FOR SX TANK FARM BARRIER CHARACTERIZATION

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SMALL DIAMETER GEOPHYSICAL LOGGING FOR SX TANK FARM BARRIER CHARACTERIZATION

by

Russel Randall, PhD and Randall Price

to

EnergySolutions Federal Services, Inc.
2345 Stevens Drive
Richland, Washington 99354

October 2009

Pacific Northwest Geophysics
4200 West 19th Avenue
Kennewick, Washington 99338

Three Rivers Scientific
3740 Grant Court
West Richland, Washington 99353

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TERMS

BGO	Bismuth Germinate Oxide
DOE	U.S. Department of Energy
Eq.Ra	equivalent radium
MDL	minimum detection level
PNG	Pacific Northwest Geophysics
%VF	Percent Volume Fraction (of moisture content)

SMALL DIAMETER GEOPHYSICAL LOGGING FOR SX TANK FARM BARRIER CHARACTERIZATION

1.0 INTRODUCTION

Pacific Northwest Geophysics (PNG) and Three Rivers Scientific provided small diameter (slim-hole) logging at the SX barrier characterization site at the 241-SX Tank Farm. This logging was intended to aid in defining the extent of subsurface contamination. Logging surveys were conducted in twelve small diameter probeholes with a Bismuth Germinate Oxide (BGO) spectral gamma scintillation detector and a neutron-neutron moisture probe. The surveys identified zones of interest for sample collection and laboratory analysis. This report includes the survey results for each of the probeholes (see Appendix A).

The spectral gamma detector identified cesium-137 (Cs-137) near the surface in several probeholes. Cs-137 was detected at depths greater than 3.05 m (10 ft) in three probeholes (C7167, C7183, and C7185). The deepest detection for Cs-137 was at 14.63 m (48 ft) in probehole C7183. Low energy gamma activity that is not attributed to the natural radionuclides or Cs-137 was identified in three probeholes (C7167, C7183, and C7191). Calibration of the spectral gamma detector is discussed in Section 2.1.

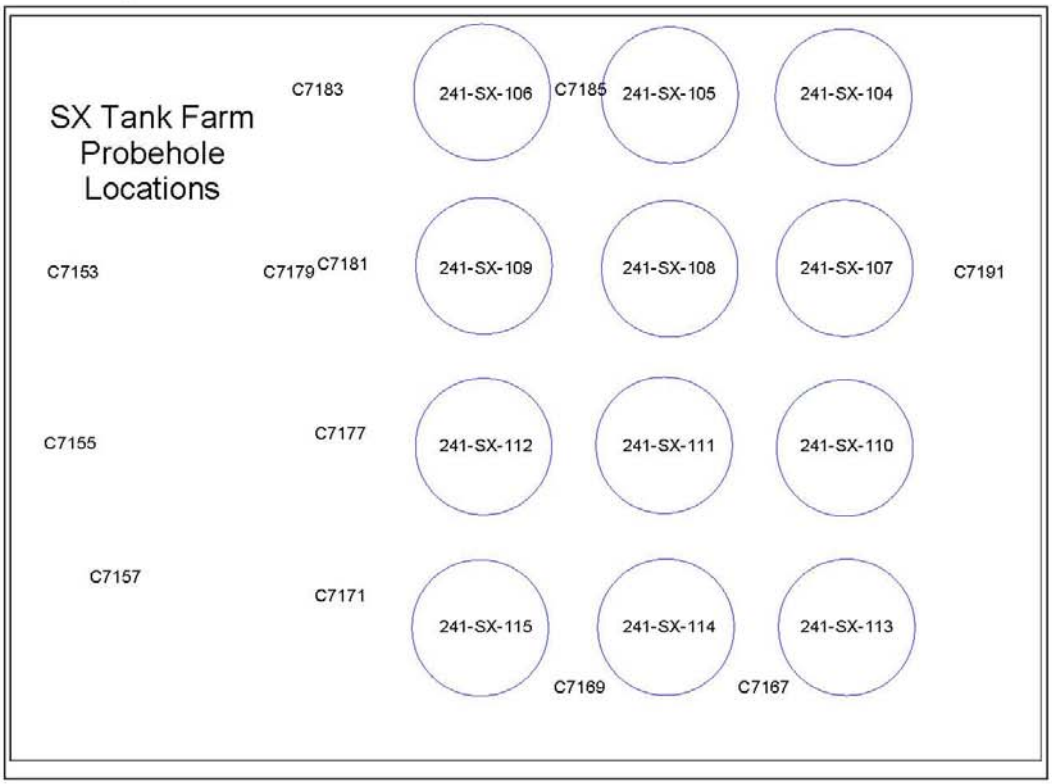
Neutron-neutron moisture logs were also collected in all probeholes and had moisture content that ranged from about 4 to over 20 percent volume fraction (%vf) moisture. The moisture detector measures the density of hydrogen (moisture) in subsurface soils. Calibration of this detector is discussed in Section 2.2.

2.0 GAMMA AND MOISTURE SURVEYS

The gamma and moisture logs were collected according to approved procedures (PNG 2009). The surveys were recorded from the bottom of the probehole (maximum survey depth) to the ground surface. Zero depth reference is at the ground surface. A repeat measurement was acquired daily in at least one probehole to verify instrument repeatability. The main log and repeat intervals are presented on the same plot. The computed results of the main and repeat intervals were reviewed and for all of the intervals collected, the results agree within the uncertainty of the measurement counting statistics.

The survey results for each probehole are presented as a depth versus concentration plot in Appendix A. The plots are in numeric order of the probeholes (C7153 – C7191). Appendix A also contains a table summarizing data for each probehole: probehole depth, maximum concentration of Cs-137 in pCi/g, and maximum detected depth of Cs-137. Figure 1 shows a map view of the probehole locations relative to the underground storage tanks within the investigation site.

Figure 1. Probehole Locations at SX Tank Farm Barrier Characterization Site.



2.1 GAMMA CALIBRATION AND SURVEYS

The objective of the gamma survey logs was to identify depth intervals with elevated gamma activity. The spectral gamma scintillation detector uses a BGO crystal that is 2.54 cm (1 in.) in diameter by 10.1 cm (4 in.) long. Other components of the gamma detector are the high-voltage supply, photo-multiplier tube, pre-amp, and multi-channel analyzer. The settings of the detector components are fixed (i.e., set up during assembly, prior to calibration) and cannot be adjusted by the field-logging engineer. The detector gain and lower threshold are set to record gamma ray activity with energies between 200 and 3000 keV. Lantern mantles containing Th-232 are used as a field verifier at the beginning and ending of each day's logging activities to check detector resolution (integrity) and energy calibration (amplifier gain).

The spectral gamma surveys were logged at 100 second per 0.15 m (0.5 ft). A spectrum of 256 channels was collected each 0.15 m (0.5 ft) from the bottom of the probehole to the surface. The spectra were recorded in Ortec[1] PHA format with one spectrum per file (filename extension: "-.chn"). Spectra were processed to quantify the concentration of the naturally occurring

[1]Ortec is a registered trademark of EG&G Ortec, Gouda, Netherlands.

radionuclides (K, U, & Th) and quantify Cs-137 when present above the minimum detection threshold. The minimum detection level (MDL) for Cs-137 is 1 pCi/g. The calibration certificate is shown in Figure 2. Also the gross gamma was calibrated to the industry standard of equivalent radium-226 (Eq.Ra) in pCi/g. Calibration was for the probehole conditions present at the investigation site.

2.2 NEUTRON MOISTURE CALIBRATION AND SURVEYS

The neutron moisture sonde combines the PNG-owned thermal-neutron detector and a U.S. Department of Energy (DOE)-owned sealed neutron source (50 mCi AmBe). The DOE-owned neutron source was used because it was already on the Hanford Site and was managed by the DOE Radiation Management Program. The neutron source is an integral component of a neutron moisture detector, manufactured by Campbell Pacific Nuclear, and is identified by the tool serial number H370608792.

The integrity of the sealed neutron source is always maintained when used in calibration and probehole logging activities. Source integrity is maintained by inserting the PNG-owned neutron detector module into the housing containing the sealed neutron source.

Calibration was performed in six borehole calibration models (Meisner and Randall 1995). Three of these models had a 15.24 cm (6-in.) hole size and three models had a 20.32 cm (8-in.) hole size. The moisture content was different for each borehole model within each set of three models (5, 12, and 20 percent by volume). The detector count rate in each of the six borehole calibration models is summarized in Table 2. The calibration certificate is shown in Figure 3.

Table 2. Moisture Calibration Data.

Moisture Content Percent – volume fraction	6 inch Models[a] (cps)	8 inch Models[a] (cps)
5 %vf	103.87	81.1
12 %vf	155.11	114.92
20 %vf	191.9	140.17

[a]Count rates are mean of 10 sample measurements at 60-sec each, 2/25/2009.

The probehole size for this project was 6.35 cm (2.5 in.) outside diameter (OD). Therefore, the moisture calibration was extrapolated to the correct hole size. Figure 4 shows the moisture calibration certificate for the 6.35 cm (2.5-in.) hole size.

The probehole moisture survey was collected at 0.30 m/min (1 ft/min). Processing of the survey data requires that the detector raw survey data be normalized to the thickness of the steel casing present in the calibration models (0.83 cm [0.325 in.]) Given that the probehole casing thickness is 0.97 cm (0.38 in.), a correction factor of 1.055 is required to increase (normalize) the observed neutron detector count rate to the conditions of the calibration model (Meisner et al. 1996).

Figure 2. BGO Calibration Certificate.

Certificate of Calibration
SDGR.BGO.2
Apr 21, 2009

Data were taken at the Hanford KUT models on April 21, 2009. SDGR.BGO.2 is the designated Scintillator tool. Four models were used for Spectral KUT calibration. Ten spectra were recorded in order to perform statistical analysis. The observed statistical deviations were seen to be within the theoretically predicted variation, refer to the files compressed: AveOut2.XLS for this analysis. The instrument was covered with 0.94 cm (0.37-in.) wall thickness tubing.

The algorithm described in WHC-SD-EN-TI-293, *Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models*, Rev. 0, determines the coefficient analysis. Three energy windows were used for each potassium (K), uranium (U) and thorium (T) analysis, and these are:

K: 1320-1575 keV **U: 1650-2390 keV** **T: 2475-2765 keV**

The concentration for each of the three elements is a linear combination of the count rates in the three windows. The resulting coefficients for each of the three elements are:

Concentration-K =	**4.712*K**	**-4.297*U**	**4.057*T**
Concentration-U =	**0.0*K**	**1.431*U**	**-2.998*T**
Concentration-T =	**0.0*K**	**-0.052*U**	**2.032*T**

Where K, U & T are the count rates (c/s) in the listed energy windows and the resulting concentration values are in pCi/g.

Digital files condensed as Cal_SD-GR-2_2009-v0.zip. This compressed file contains:

- Calibration raw data
- MathCad data analysis files
- Spreadsheet data formatting

The undersigned certifies that the data archived in the file "Cal_SD-GR-2_2009-v0.zip" were collected and evaluated in accordance with WHC-SD-EN-TI-293 and that the above-stated calibration coefficients are correct and applicable for the tool SDGR.BGO.2 effective April 21, 2009.

Signature: Date:

/s/ Russel Randall, PhD April 23, 2009
Three Rivers Scientific

Figure 3. Moisture Calibration Certificate, 15.24 cm (6-in.) and 20.32 cm (8-in.) Hole.

Certificate of Calibration for
Instrument SD-Moist792

February 25, 2009

Data were taken in the Moisture models on February 25, 2009, for the SD-Moist792 neutron-neutron moisture tool. The neutron source from DOE moisture tool # H370608792 was used with the passive neutron detector probe from PNG.

Six models were used for moisture calibration, three for 15.24 cm (6-in.) casing and three for 20.32 cm (8-in.) casing . Repeated spectra were recorded for each model in order to perform statistical analysis. The observed statistical variation agreed with the theoretically predicted variation, refer to the file MoistCal.xls for this analysis.

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306, *Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration* , Rev. 0. The regression function used is a power law form and defined by:

$$V = a \cdot CR^{\alpha}$$

Where V is the formation moisture content in volume fraction water in vf units. One vf unit is 1% by volume water. The coefficients a and α are fit coefficients, and CR is the deadtime corrected observed total count rate, (c/s).

6-in. casing	**8-in. casing**
a = .0001586	**a = .00008287**
α = 2.229	**α = 2.504**

The undersigned certifies that the data archived in data file "SD-Moist792_2009.zip" were collected and evaluated in accordance with WHC-SD-EN-TI-306 and that the above-stated calibration coefficients are correct and applicable for tool SD-Moist792, effective February 25, 2009.

Signature: Date:

/s/ Russel Randall, PhD February 28, 2009
Three Rivers Scientific

5

Figure 4. Moisture Calibration Certificate, 6.35 cm (2.5-in.) Hole.

Moisture Calibration Extrapolation to 2.5 Inch Borehole
Instrument SD-Moist792

February 25, 2009

Moisture calibration was performed in the Hanford physical models. These standards have 15.24 cm (6-in.) and 20.32 cm (8-in.) inside diameter casings. The Tank Farm Direct Push borehole is cased with a 6.35 cm (2.5-in.) outside diameter iron casing. The calibration for the moisture response is a function of borehole diameter.

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306, Rev. 0. The regression function used is a power law form and defined by:

$$V = a \cdot CR^{\alpha}$$

Where V is the formation moisture content in volume fraction water in vf units. One vf unit is 1% by volume water. The coefficients a and α are fit coefficients, and CR is the deadtime corrected observed total count rate, (c/s). A linear extrapolation was applied to determine the 6.35 cm (2.5-in.) borehole diameter.

2.51-in. borehole
a = .0002123
α = 2.010

The undersigned certifies that the analysis files archived in the file "SD-Moist792_2009.zip" were evaluated in accordance with Energy*Solutions* procedures and that the above-stated calibration coefficients are correct and applicable for tool SD-Moist792, effective February 25, 2009.

Signature: Date:

/s/ Russel Randall, PhD February 28, 2009
Three Rivers Scientific

3.0 CONCLUSION

Spectral Gamma and Neutron Moisture survey logs were collected in the twelve probeholes installed at the SX Tank Farm Barrier Characterization Site in the 200 West Area. The survey summary table and each survey plot are presented in Appendix A.

The spectral gamma surveys of the probeholes can be summarized as follows.

- No Cs-137 above MDL was detected in four of the 12 probeholes (C7153, C7155, C7157 and C7169). Only background activity from the natural radionuclides was identified in the four probeholes listed.
- C-137 was detected near the surface in five probeholes (C7171, C7177, C7179, C7181, and C7191).
- Cs-137 was detected in three probeholes at depths greater than 3.05 m (10 ft) below ground surface (C7167, C7183, and C7185), and the maximum Cs-137 concentration below 3.05 m (10 ft) was 3.5 pCi/g at 6.86 m (22.5 ft) in probehole C7183.
- Low-energy gamma activity that is not from the analyzed isotopes is present in three probeholes (C7167, C7183, and C7191).

The neutron moisture surveys for all probeholes had unique profiles when each log was examined in detail. Moisture distribution has a high degree of variability. Often the higher moisture content intervals appear as thin zones in which the moisture content increases sharply from a low level (near 5 %vf) to over 15 %vf in a depth interval of 0.61 m (2 ft). Drilling samples have shown that the high moisture content intervals are often fine-grain sediments in a fining upward sediment sequence.

5.0 REFERENCES

Meisner, James and Russel Randall, 1995, *Vadose Zone Moisture Measurement Through Steel Casing Evaluation*, WHC-SD-EN-TI-304, Rev.0, Westinghouse Hanford Company, Richland, Washington.

Meisner, James, Randall Price, and Russel Randall, 1996, *Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration*, WHC-SD-EN-TI-306, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

PNG, 2009, *Procedures: Calibration, Logging, Quality Assurance and Data Management*, Pacific Northwest Geophysics, Kennewick, Washington.

Randall, R. and D. Stromswold, 1995, *Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models*, WHC-SD-EN-TI-293, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

APPENDIX A
SPECTRAL GAMMA AND MOISTURE SURVEY RESULTS

Survey plots follow for the 12 probeholes installed around the SX Tank Farm Barrier Characterization site. Each probehole was surveyed with both the BGO spectral gamma and moisture sondes. Each log plot is preceded by a header information page that shows the repeat/overlap intervals, isotopes analyzed, observations, and logging probe calibration dates. The log plots show a maximum of 100 ft per page with a 10-ft overlap between page breaks.

The spectral gamma survey data were processed to quantify the naturally occurring radionuclides (K, U, & Th), and the man-made radionuclides of Cs-137 (blue solid line). The spectra were processed both as individual spectra for each survey depth and as a moving sum of three spectra (i.e., sum of the individual survey depth and the two adjacent spectra, above and below the current depth position). Both results are presented on the results plot. The results for the three-spectra sum are plotted as a wide line. Also the gross gamma was calibrated to the industry standard of equivalent radium-226 (Eq.Ra) in a scale of 1 to 5 pCi/g (brown line).

The neutron-neutron moisture survey data are shown with a blue dotted line. The moisture plot scale is 0-40 (%vf).

Table A1 below contains a summary of the survey results for each probehole: maximum log depth, maximum detection level for Cs-137, maximum depth of Cs-137 detection, and special observations by the analyst to flag the detection of other isotopes in addition to the natural radionuclides and Cs-137.

Table A1. Probehole Survey Summary.

Probehole ID.	Hole Depth (meters)	Hole Depth (feet)	Cs-137 (pCi/g) Max Detection	Cs-137 Max Detected Depth	Flag Isotopes Other Than Naturals and Cs-137
C7153	47.5	155.8	None above MDL	n/a	None
C7155	47.4	155.5	None above MDL	n/a	None
C7157	48.4	159.0	None above MDL	n/a	None
C7167	46.2	151.5	2 pCi/g at 2 ft	22 ft	Low Energy Flag 94-97ft
C7169	48.3	158.5	None above MDL	n/a	None
C7171	47.8	157.0	1 pCi/g at 1 ft	1 ft	None
C7177	47.7	156.5	1 pCi/g at 1 ft	1 ft	None
C7179	47.2	154.8	4 pCi/g at surface	1 ft	None
C7181	47.3	155.0	8 pCi/gat 0 ft	1 ft	None
C7183	46.3	151.8	6 pCi/g at 7 ft	48 ft	Low Energy Flag 30-34ft
C7185	46.8	153.5	8 pCi/g at 6 ft	18 ft	None
C7191	46.9	154.0	3 pCi/g at 2.5 ft	2.5 ft	Low Energy Flag 12-16ft and 30-37ft

SX-FARM C7153 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7153	Log Date:	Aug 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	136-130	Moisture	110-92
	89-82		50-40
	82-77		11-2
	32-30		
	21-16		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 was not observed. No flag is statistically present for the detection of other isotopes in addition to the ones listed above.

Moisture:

Moisture values range from 3-35%. There is laminated structure in alternating thin beds from 97-155 ft.

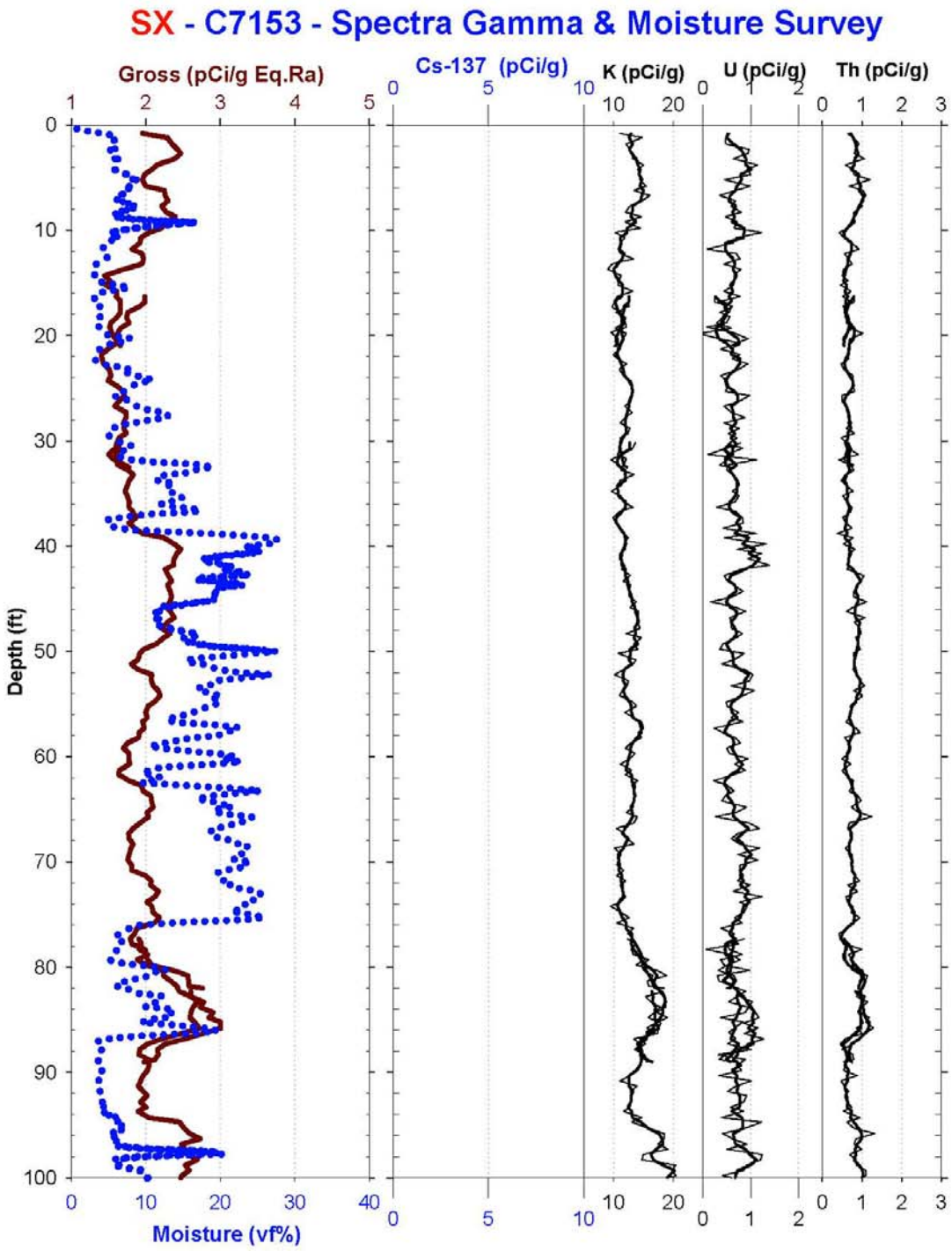
CALIBRATION CERTIFICATES

Spectral

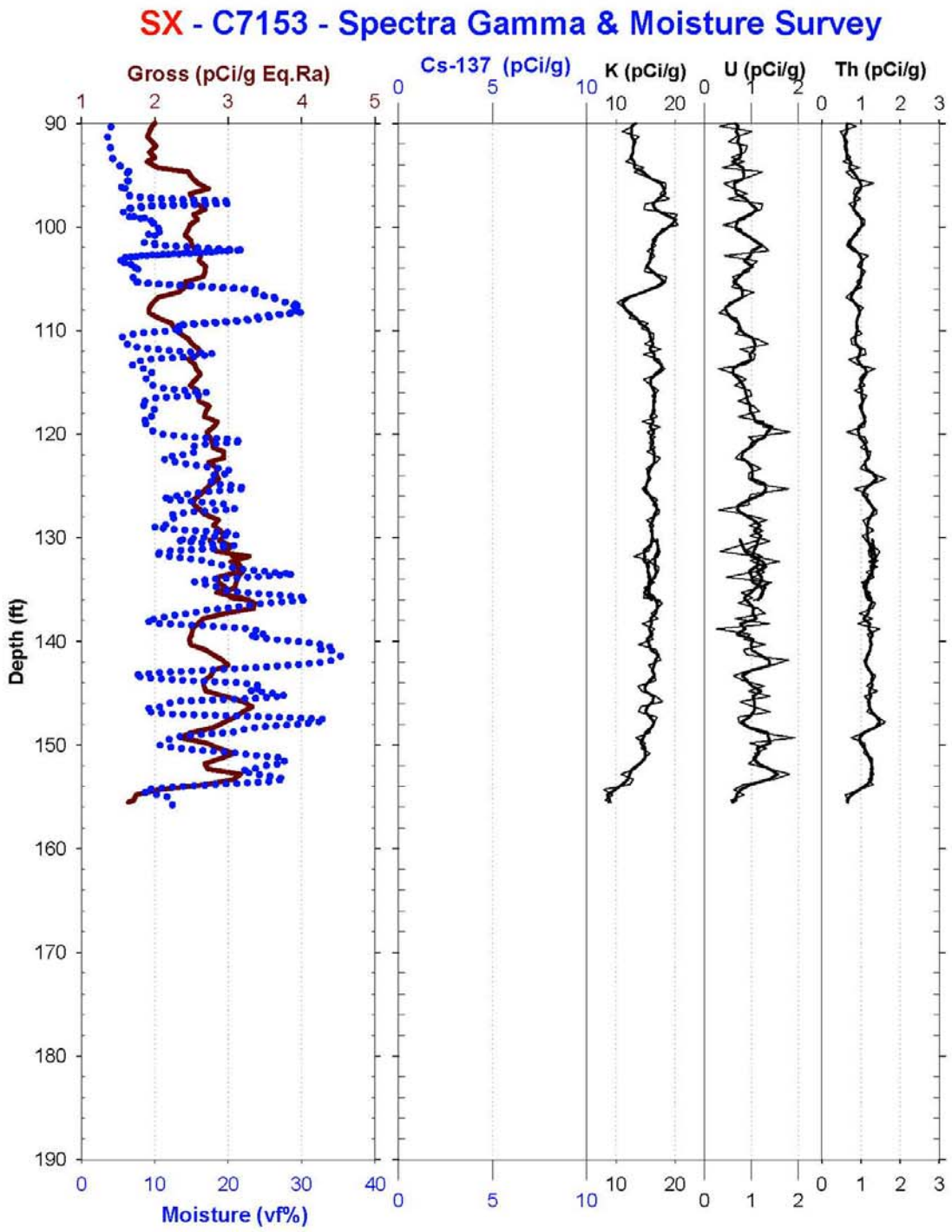
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7153 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-3


SX - C7153 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-4

SX-FARM C7155 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7155	Log Date:	Aug 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	137-132	Moisture	130-120
	110-107		120-114
	85-79		
	23-17		
	5-1		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 was not observed. No flag is statistically present for the detection of other isotopes in addition to the ones listed above.

Moisture:

Moisture values range from 3-34%. There is laminated structure in alternating thin beds from 92-155 ft.

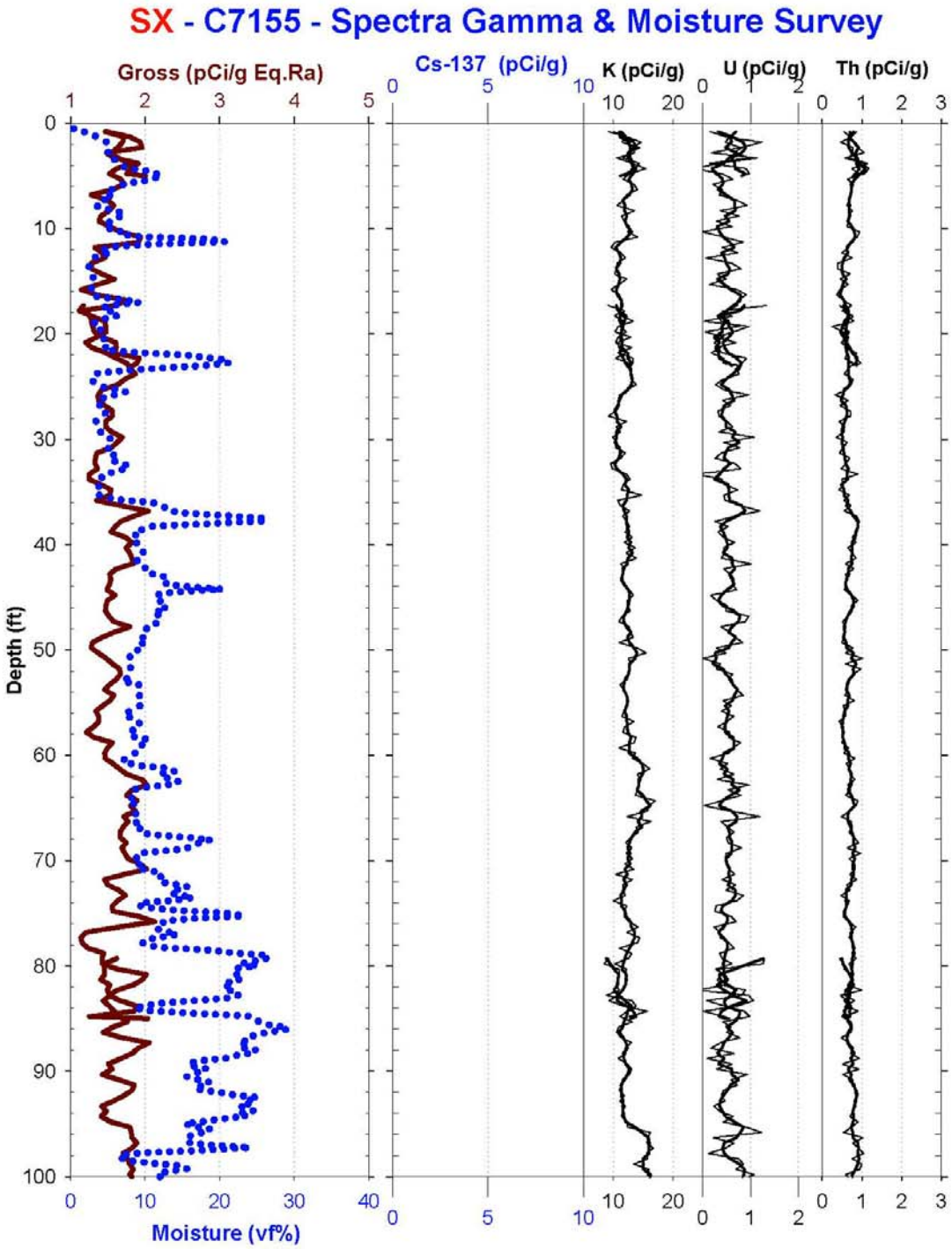
CALIBRATION CERTIFICATES

Spectral

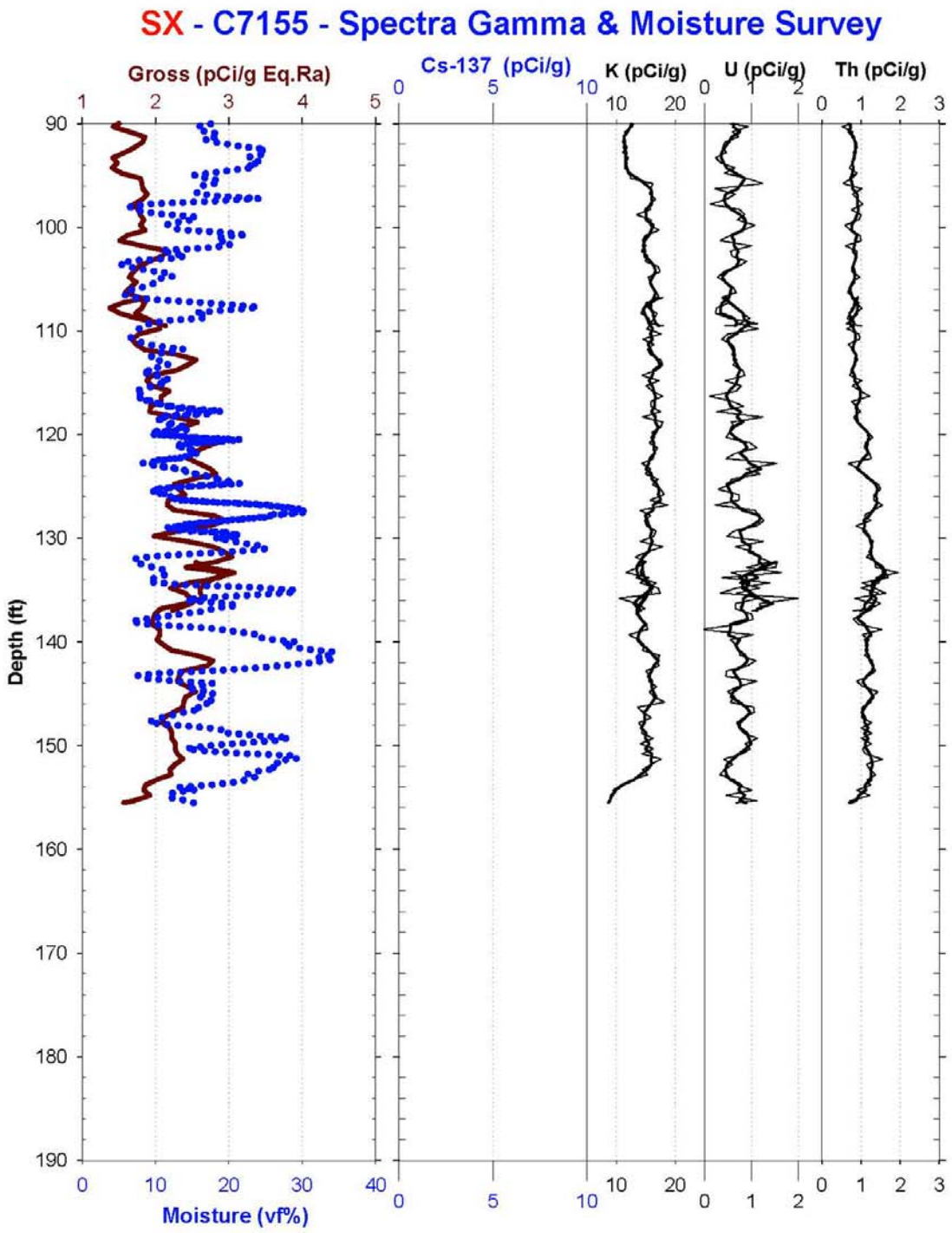
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7155 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-6


SX - C7155 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-7

SX-FARM C7157 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7157	Log Date:	Aug 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	130-125	Moisture	90-74
	81-76		25-8
	71-66		
	28-26		
	33-24		
	26-21		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 was not observed. No flag is statistically present for the detection of other isotopes in addition to the ones listed above.

Moisture:

Moisture values range from 3-34%. There is laminated structure in alternating thin beds from 120-160 ft.

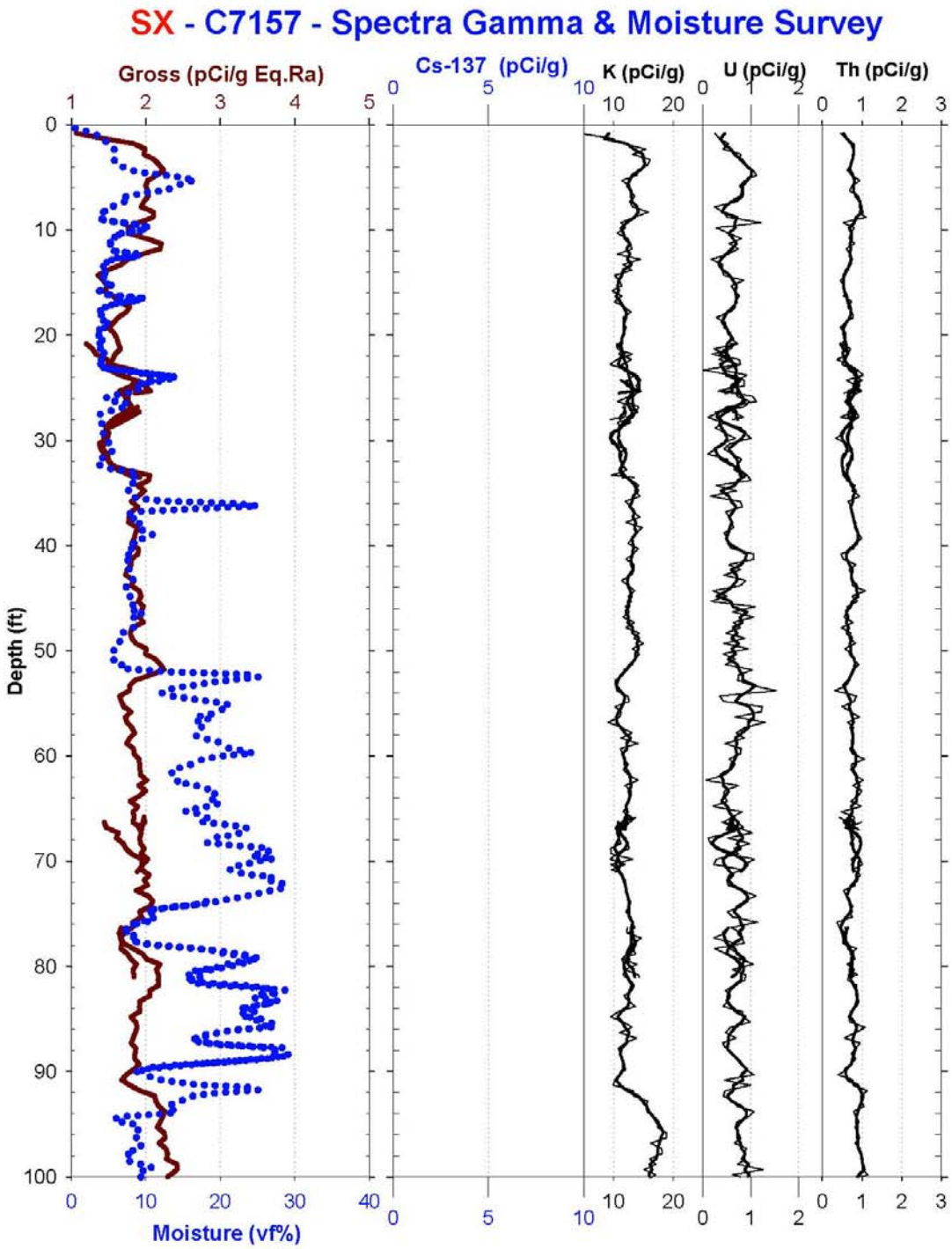
CALIBRATION CERTIFICATES

Spectral

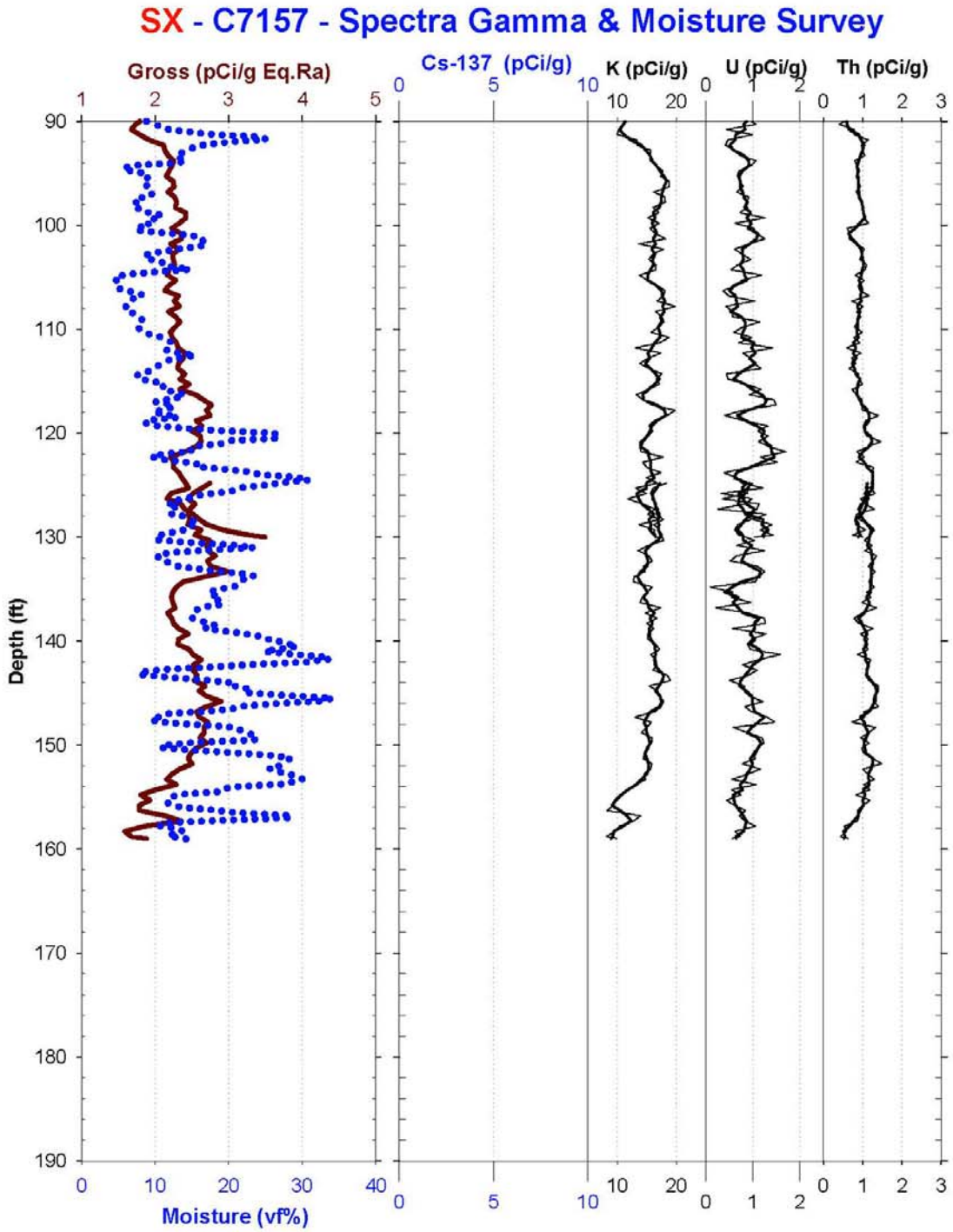
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7157 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-9


SX - C7157 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-10

SX-FARM C7167 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7167	Log Date:	June 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	100-94	Moisture	27-22
	96-92		
	41-36		
	4-1		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 observed at 1-4, 10, and 22 ft, with maximum of 1.9 pCi/g. From 94 to 97 exists a flag for low energy gamma activity not from isotopes analyzed.

Moisture:

Moisture values range from 3-31%. There is laminated structure in alternating thin beds from 114-142 ft.

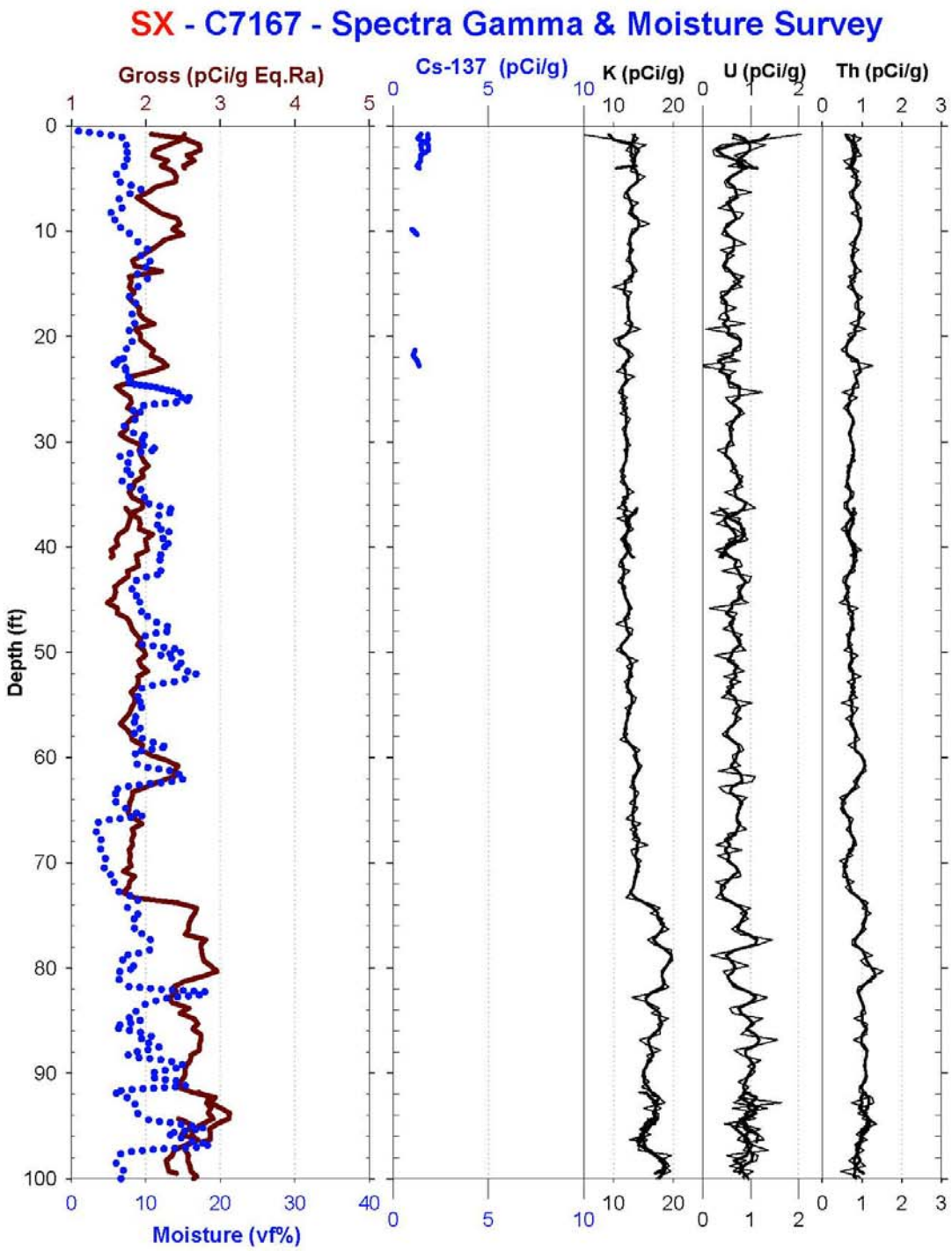
CALIBRATION CERTIFICATES

Spectral

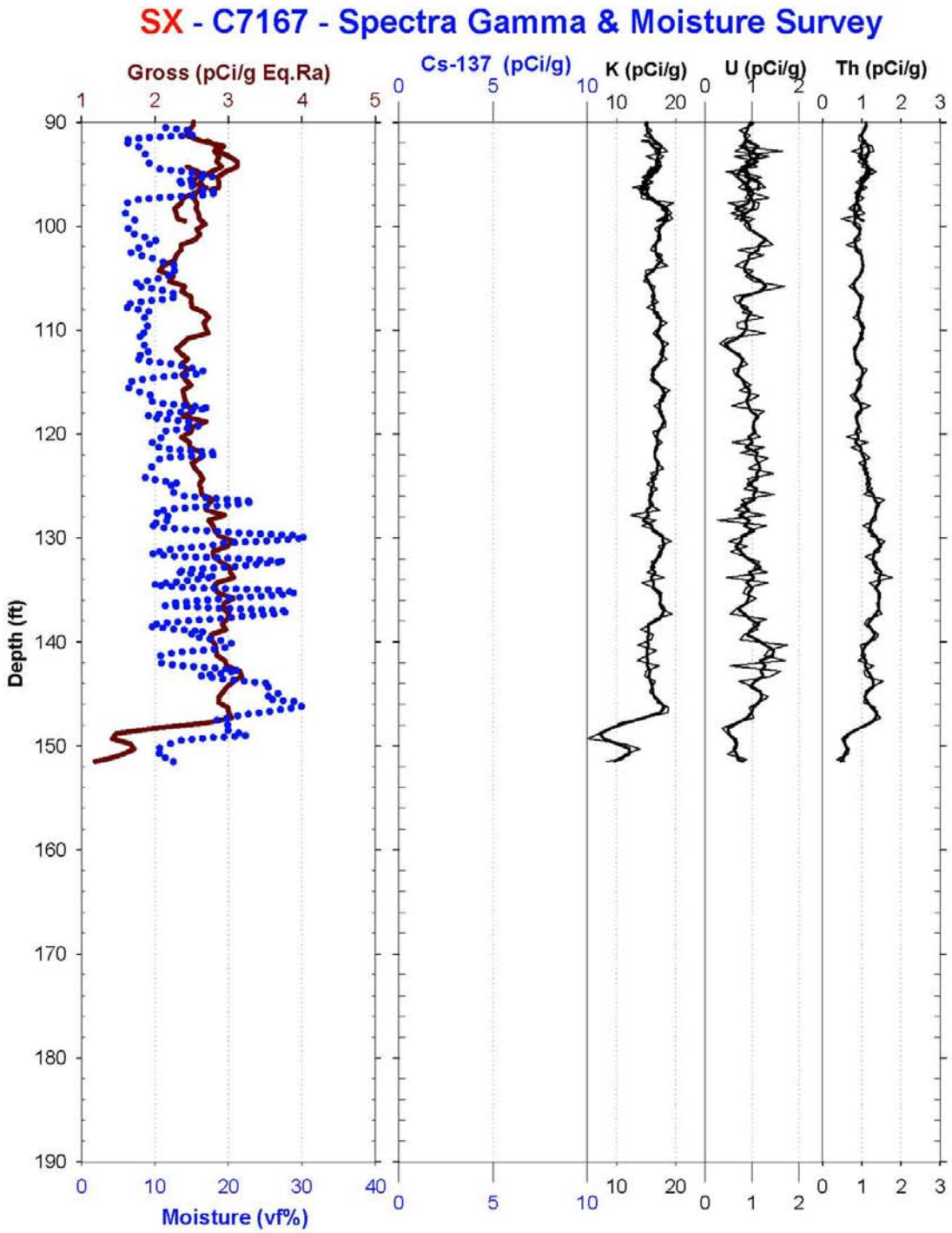
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7167 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-12


SX - C7167 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-13

SX-FARM C7169 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7169	Log Date:	May 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	115-110	Moisture	76-68
	105-100		
	88-83		
	75-69		
	26-24		
	21-19		
	21-16		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

No Cs-137 observed at any depths

Moisture:

Moisture values range from 5-31%. There is laminated structure in alternating thin beds from 132-156 ft.

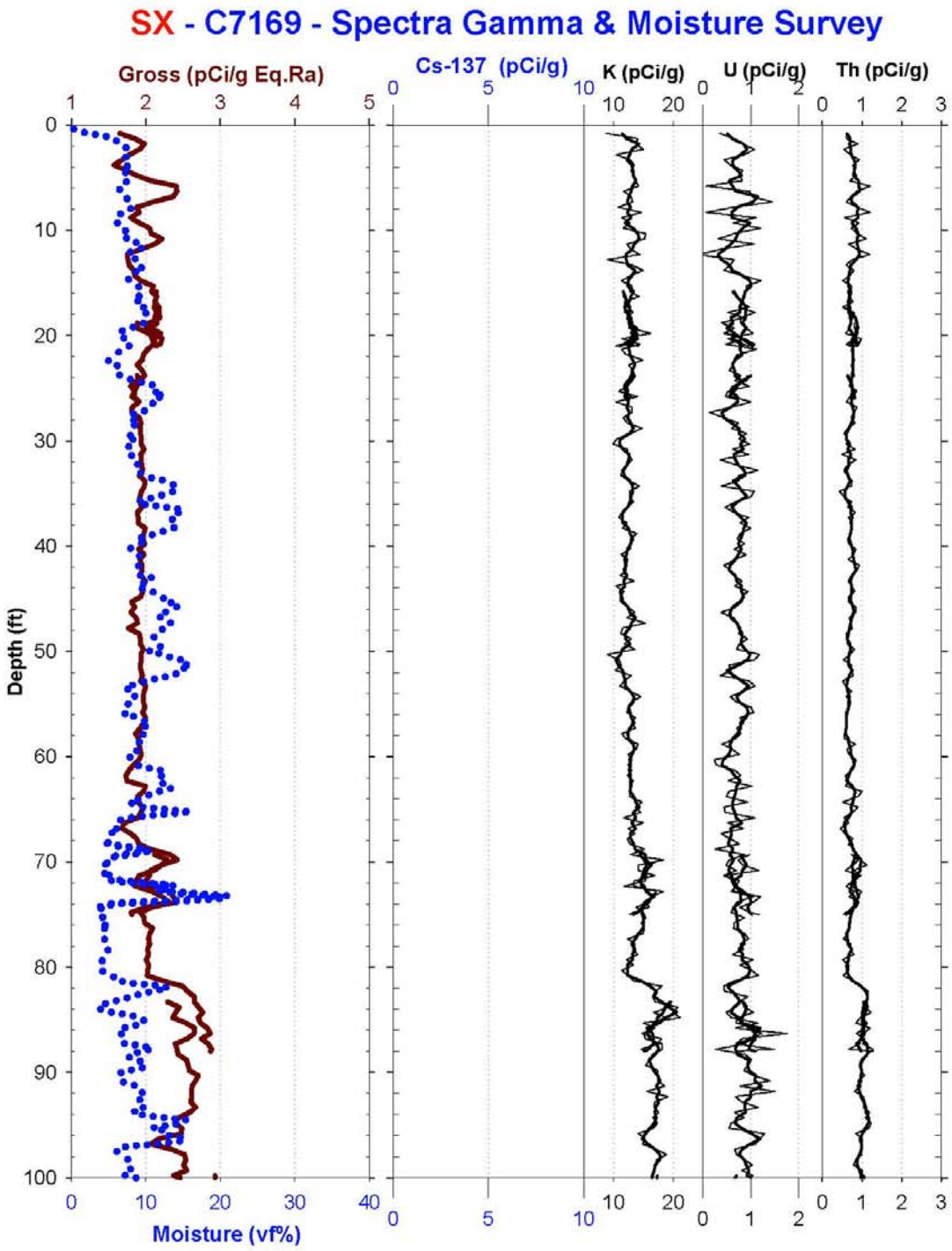
CALIBRATION CERTIFICATES

Spectral

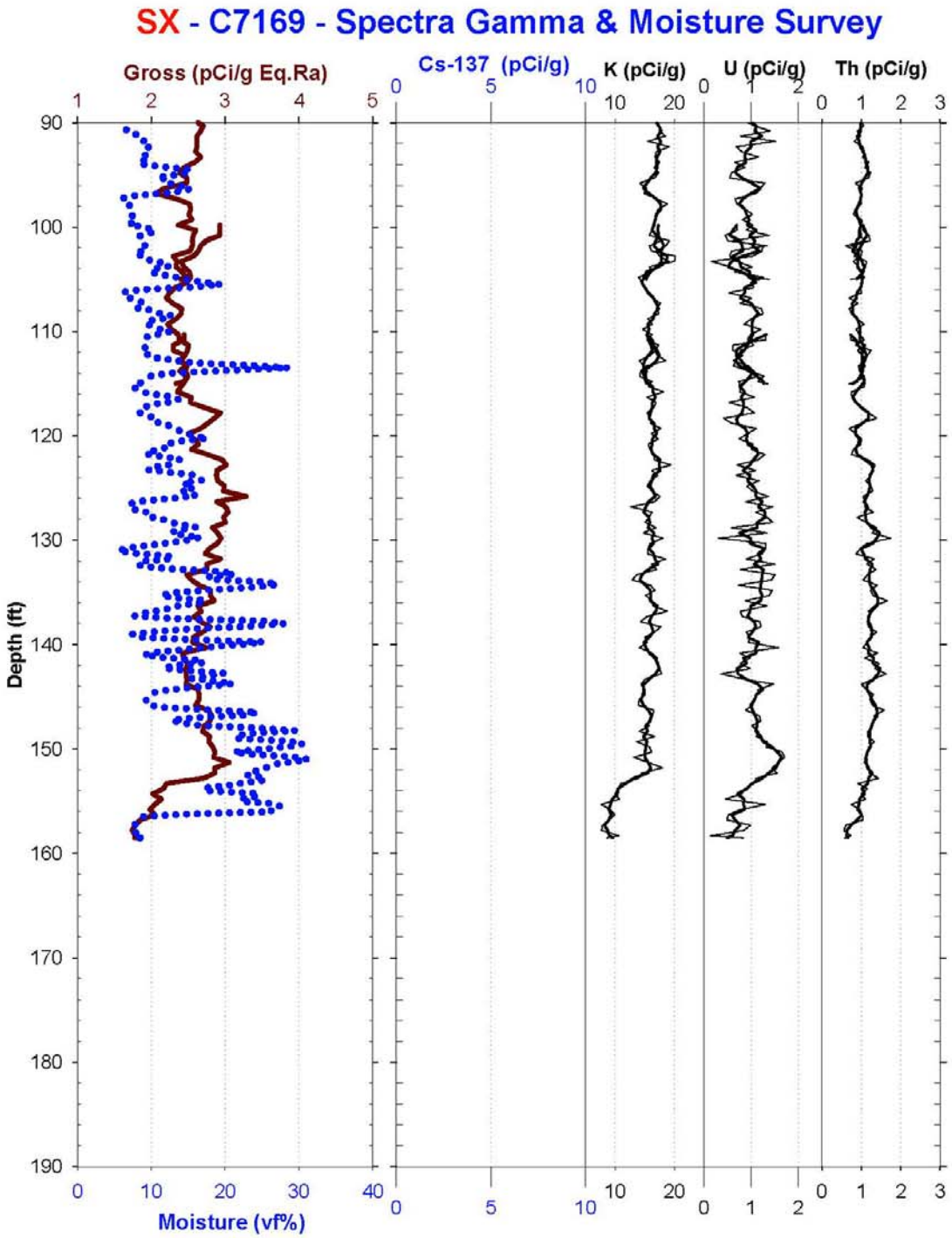
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7169 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-15


SX - C7169 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-16

SX-FARM C7171 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7171	Log Date:	April 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	157-153	Moisture	82-45
	98.5-94		30-25
	98.5-94		
	37-33		

ISOTOPES ANALYZED (GAMMA)

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 observed near 1 pCi/g at 1 ft

Moisture:

Moisture values range from 4-30%.
Many layered thin zones from 98 - 157 ft.

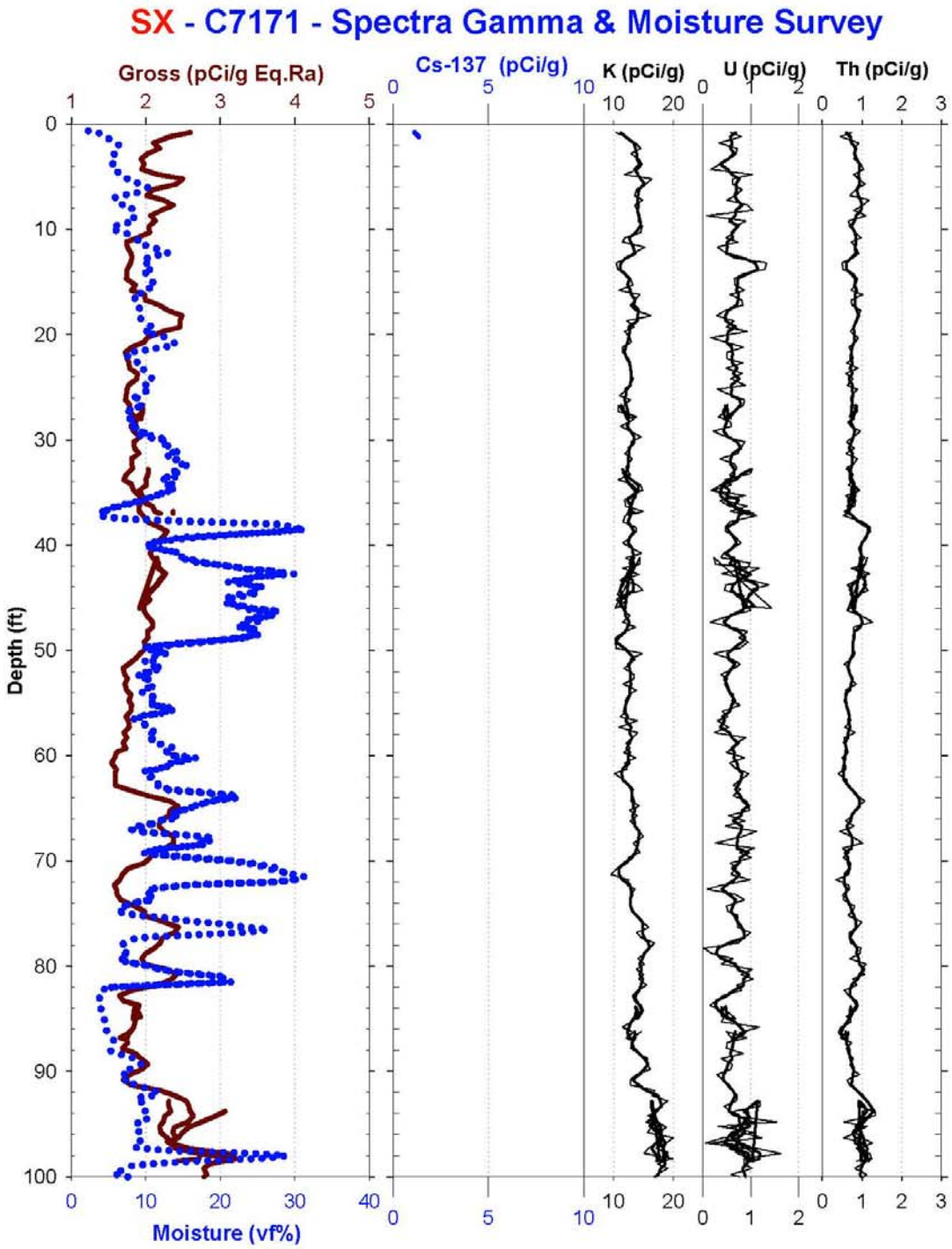
CALIBRATION CERTIFICATES

Spectral

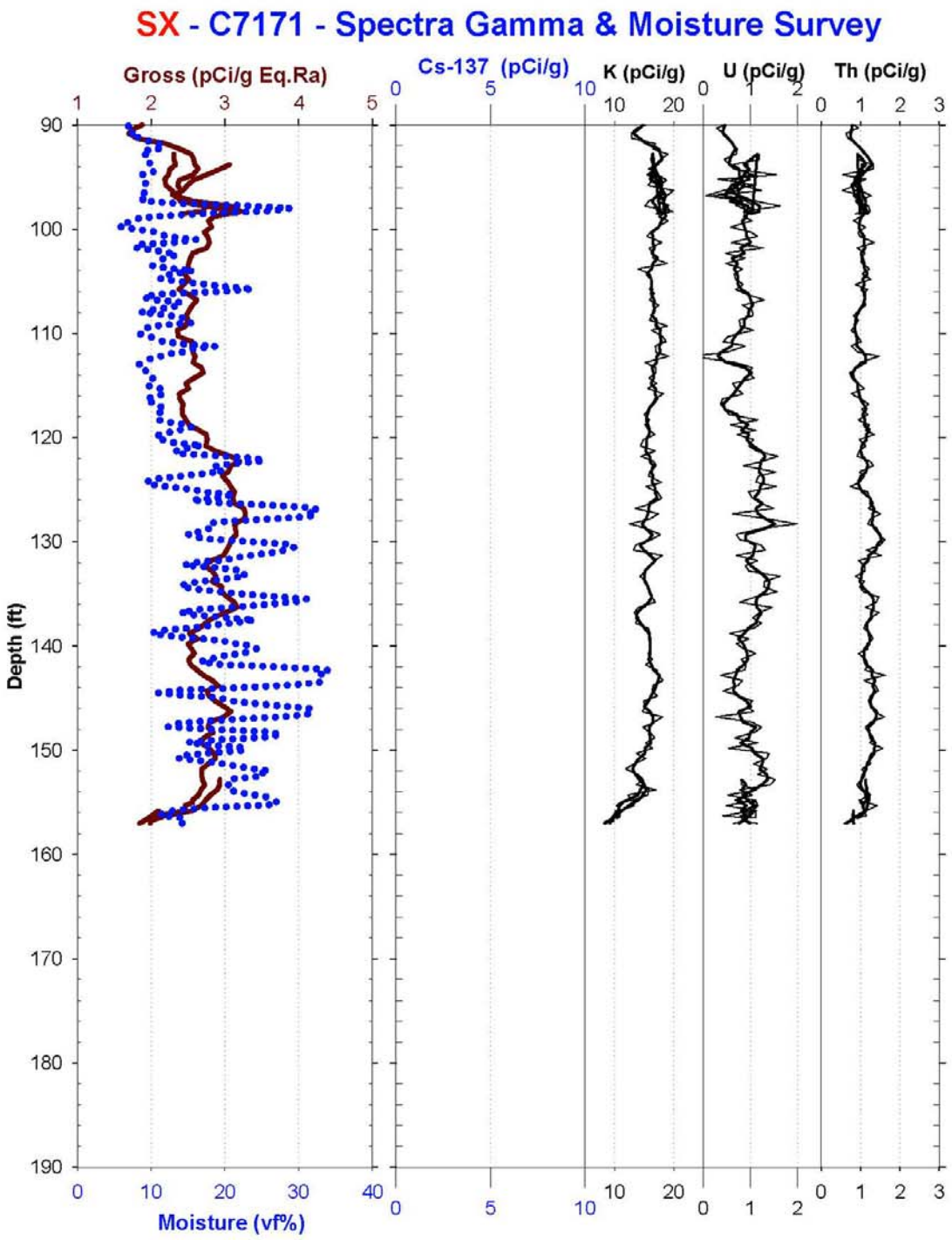
Date:	Apr 21, 2009
Electronic File	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7171 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-18


SX - C7171 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-19

SX-FARM C7177 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7177	Log Date:	May 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	143-140	Moisture	80-73
	143-139		25-23
	97-92		17-9
	96-92		
	91-85		
	58-55		
	8-12		

ISOTOPES ANALYZED (GAMMA)

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Only 1 depth point show of Cs-137 of 1.1 pCi/g at 0.8 ft

Moisture:

Moisture values range from 3-35%.

Moisture signatures from 110-155ft show alternating thin beds.

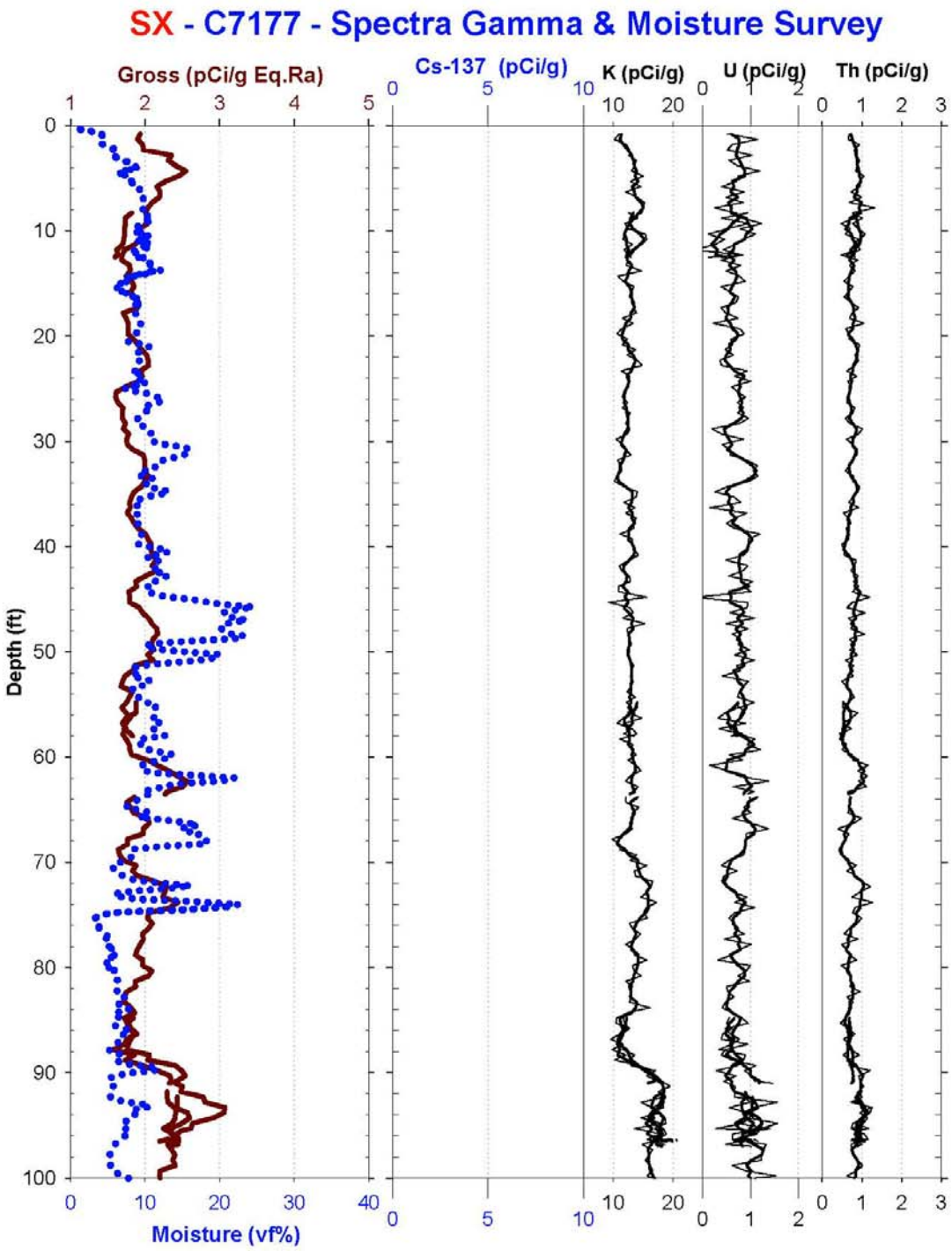
CALIBRATION CERTIFICATES

Spectral

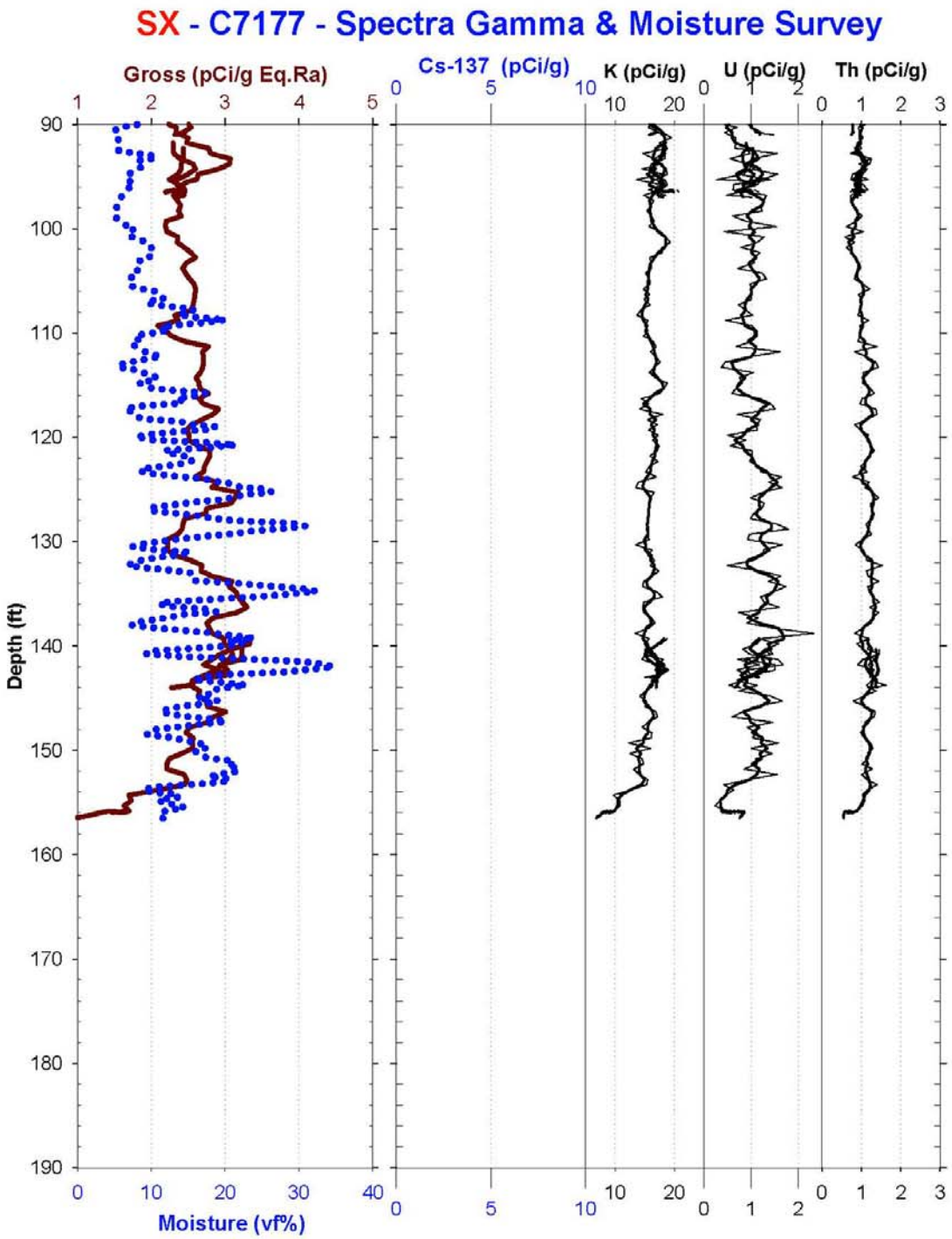
Date:	Apr 21, 2009
Electronic File	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7177 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-21


SX - C7177 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-22

SX-FARM C7179 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7179	Log Date:	May 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	105-100	Moisture	52-47
	48-42		36-31
	35-30		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 observed near surface at a reading of 3.7pCi/g. The reading is most likely due to surface contamination.

Moisture:

Moisture values range from 3-34%. There is laminated structure in alternating thin beds from 105-155 ft.

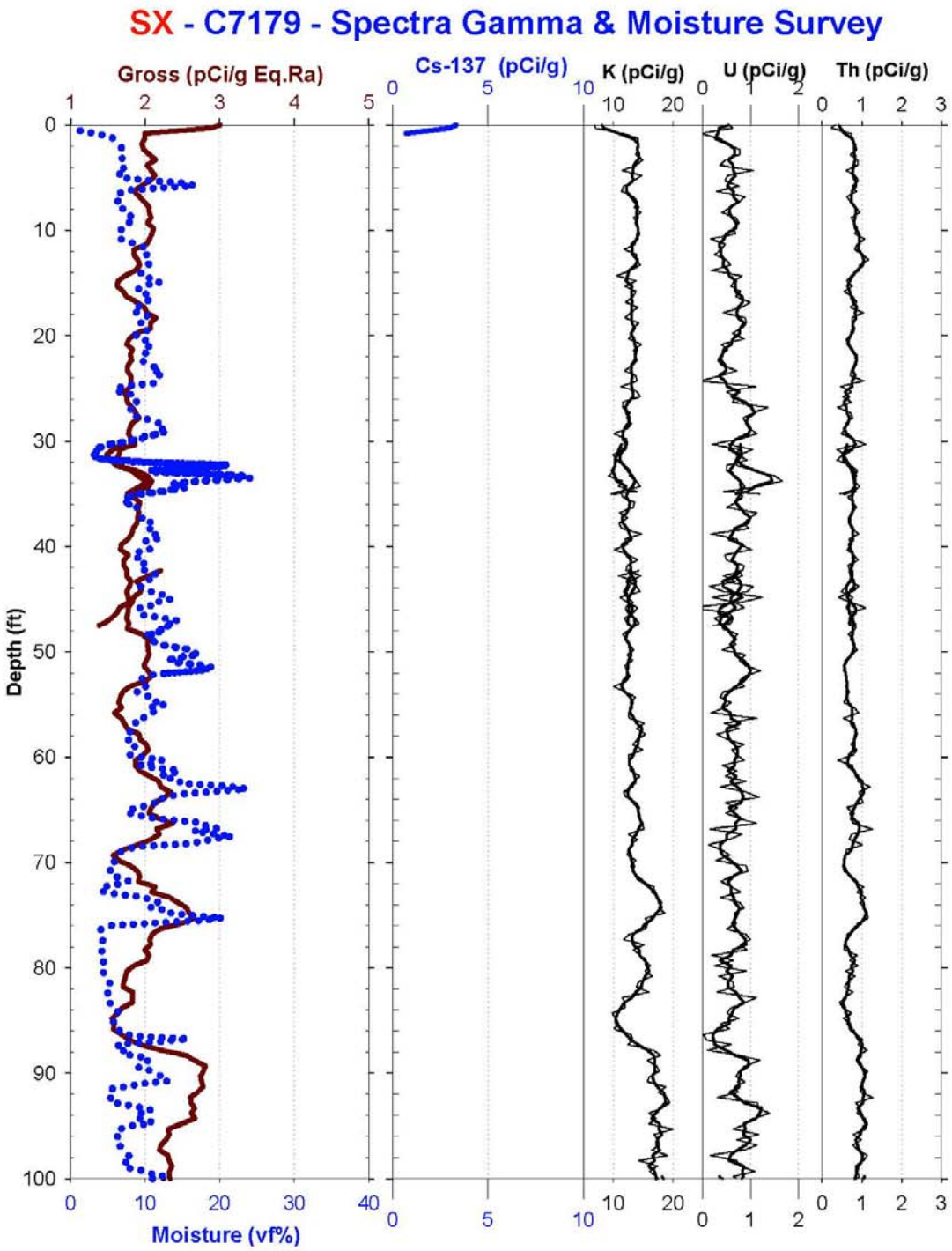
CALIBRATION CERTIFICATES

Spectral

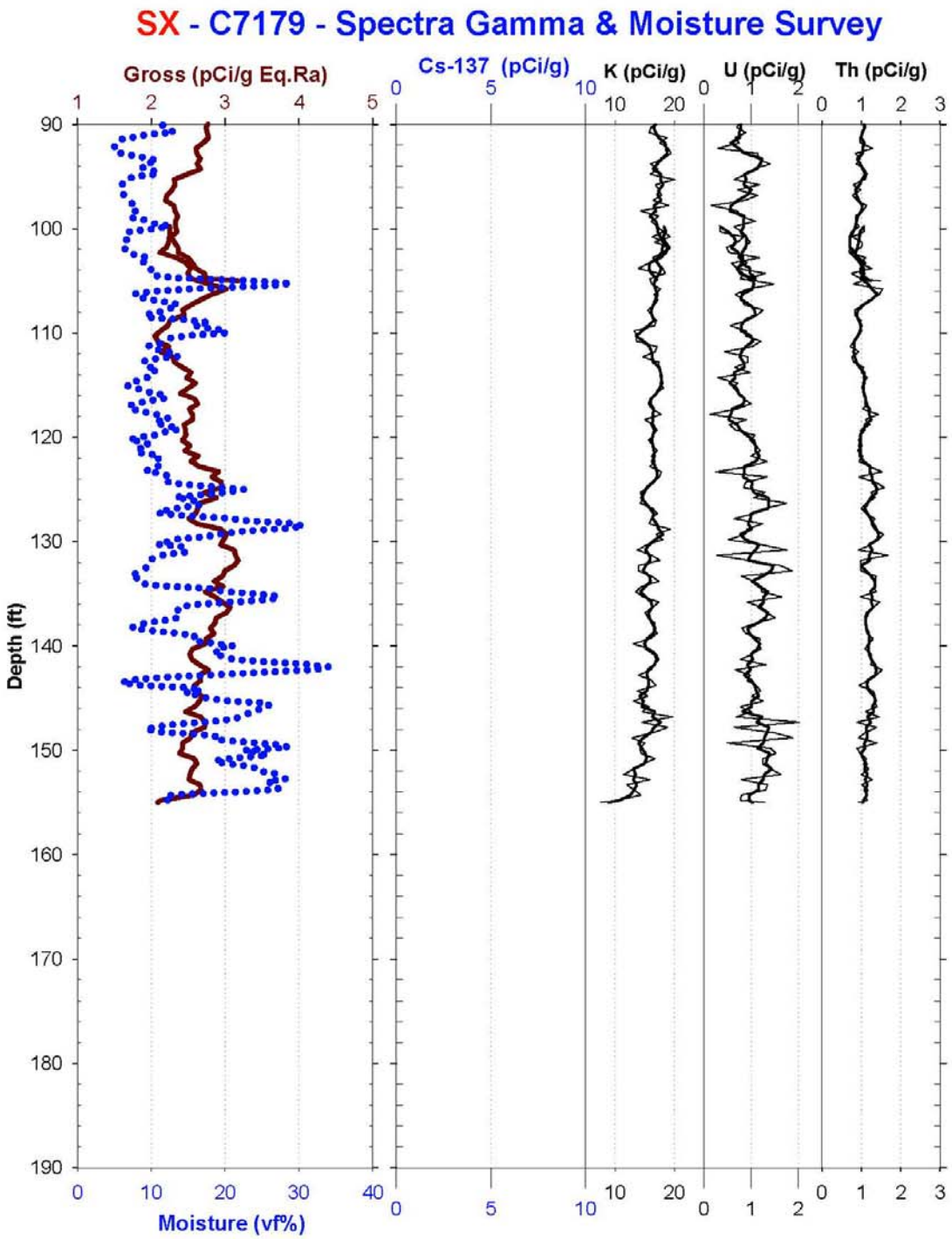
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7179 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-24


SX - C7179 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-25

SX-FARM C7181 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7181	Log Date:	May 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	100-96	Moisture	42-35
	98-94		25-20
	44-39		
	10-4		

ISOTOPES ANALYZED (GAMMA)

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Max Cs-137 of 8 pCi/g at 0.3 ft

Moisture:

Moisture values range from 3-35%.
Moisture signatures from 112-155 ft show alternating thin beds.

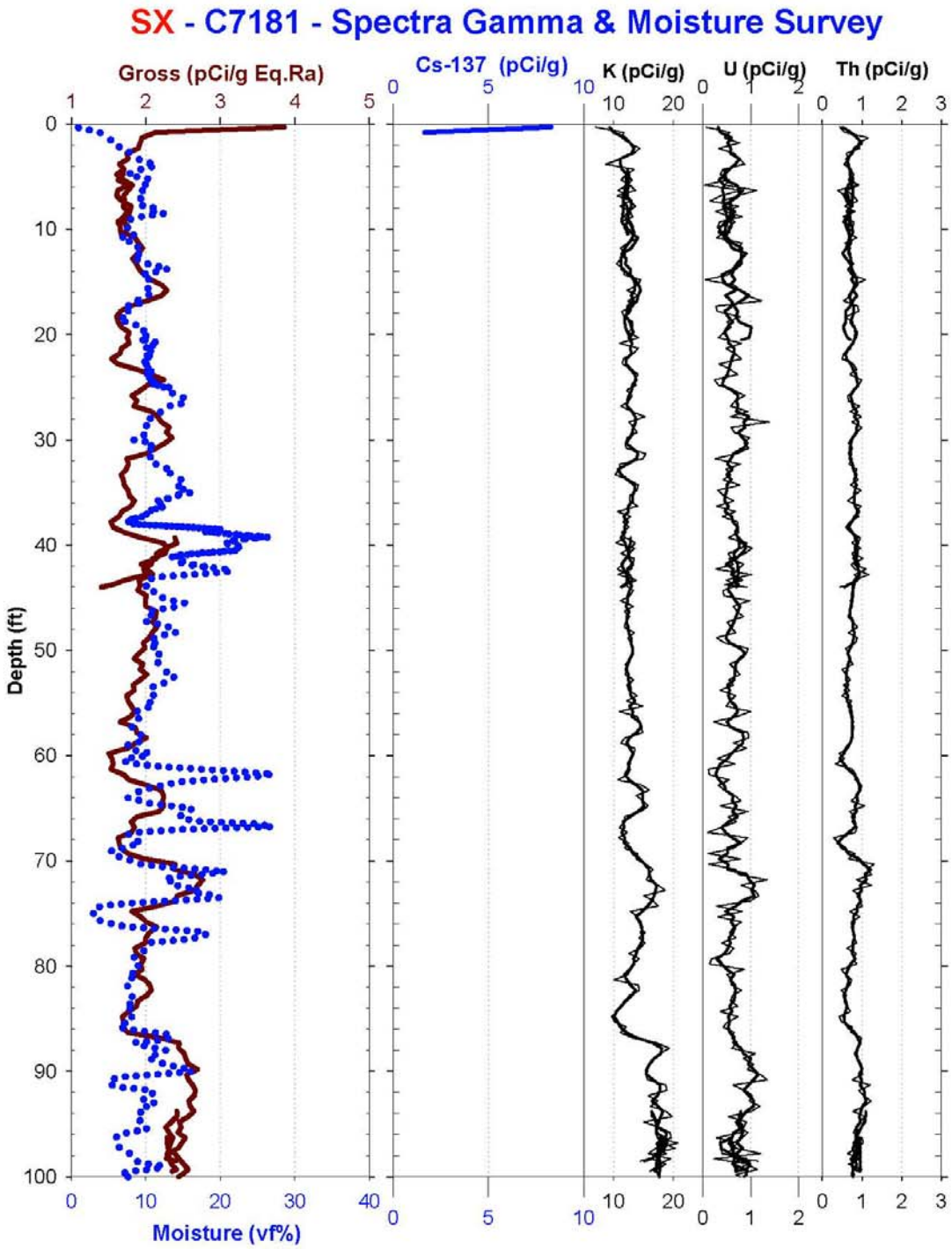
CALIBRATION CERTIFICATES

Spectral

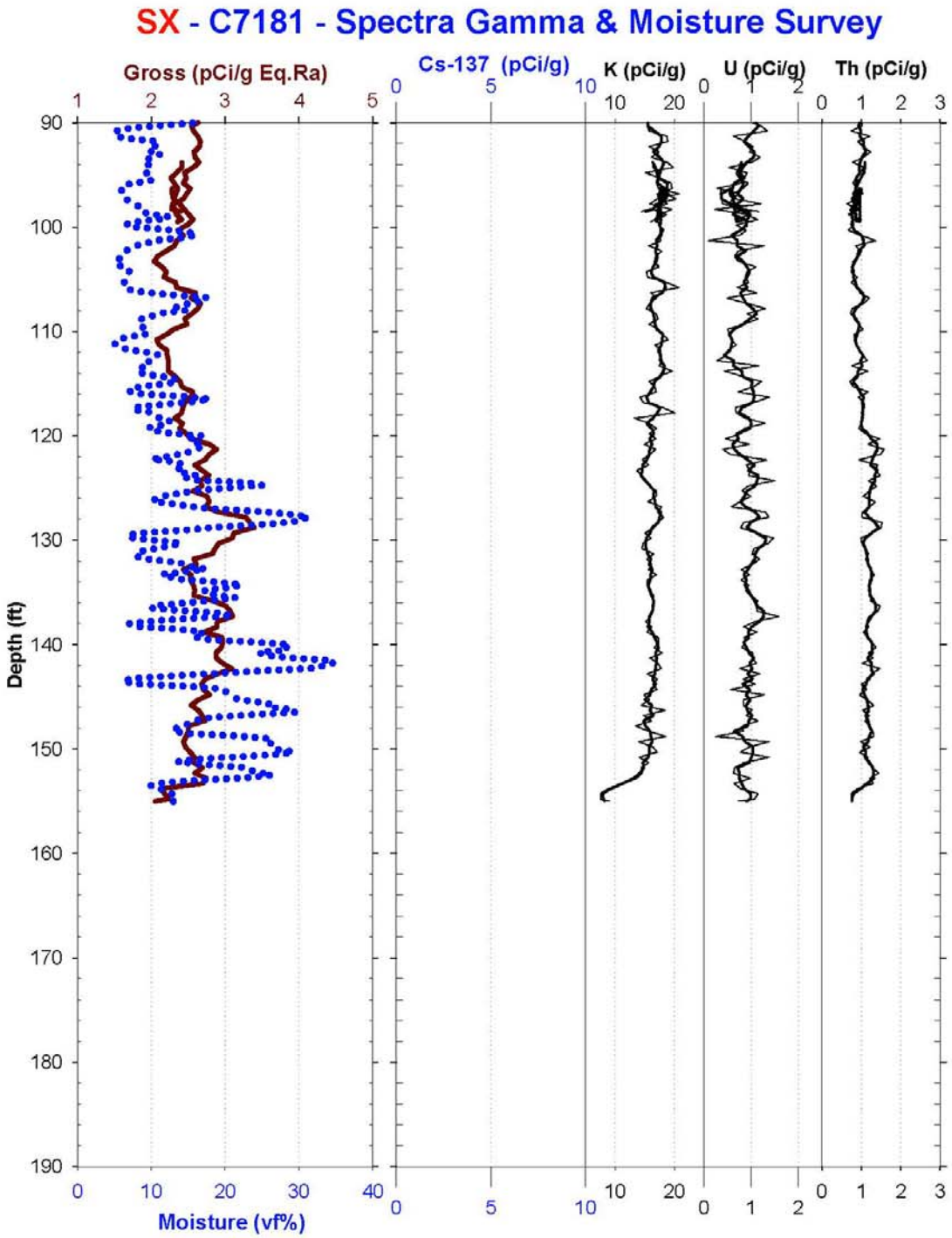
Date:	Apr 21, 2009
Electronic File	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7181 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-27


SX - C7181 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-28

SX-FARM C7183 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7183	Log Date:	June 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	126-121	Moisture	93-87
	92-80		60-54
	71-66		15-10
	22-18		
	12-8		
	7-6		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 observed at 48ft, and many zones from 24-0ft. The maximum reading was 5.8pCi/g at 7ft. The depth range from 30-34ft is flagged for low energy gamma activity not from isotopes analyzed.

Moisture:

Moisture values range from 3-35%. There is laminated structure in alternating thin beds from 128-152 ft.

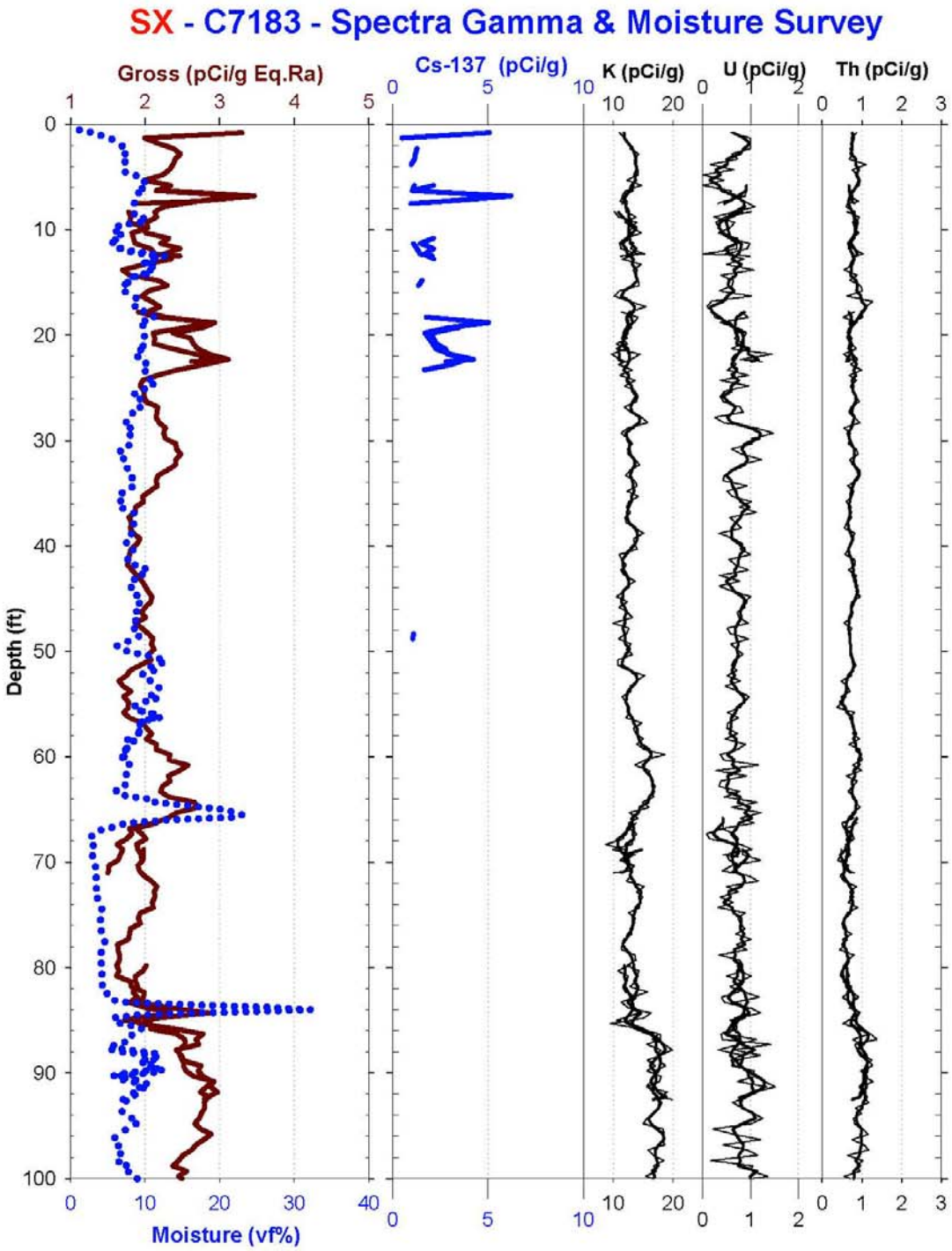
CALIBRATION CERTIFICATES

Spectral

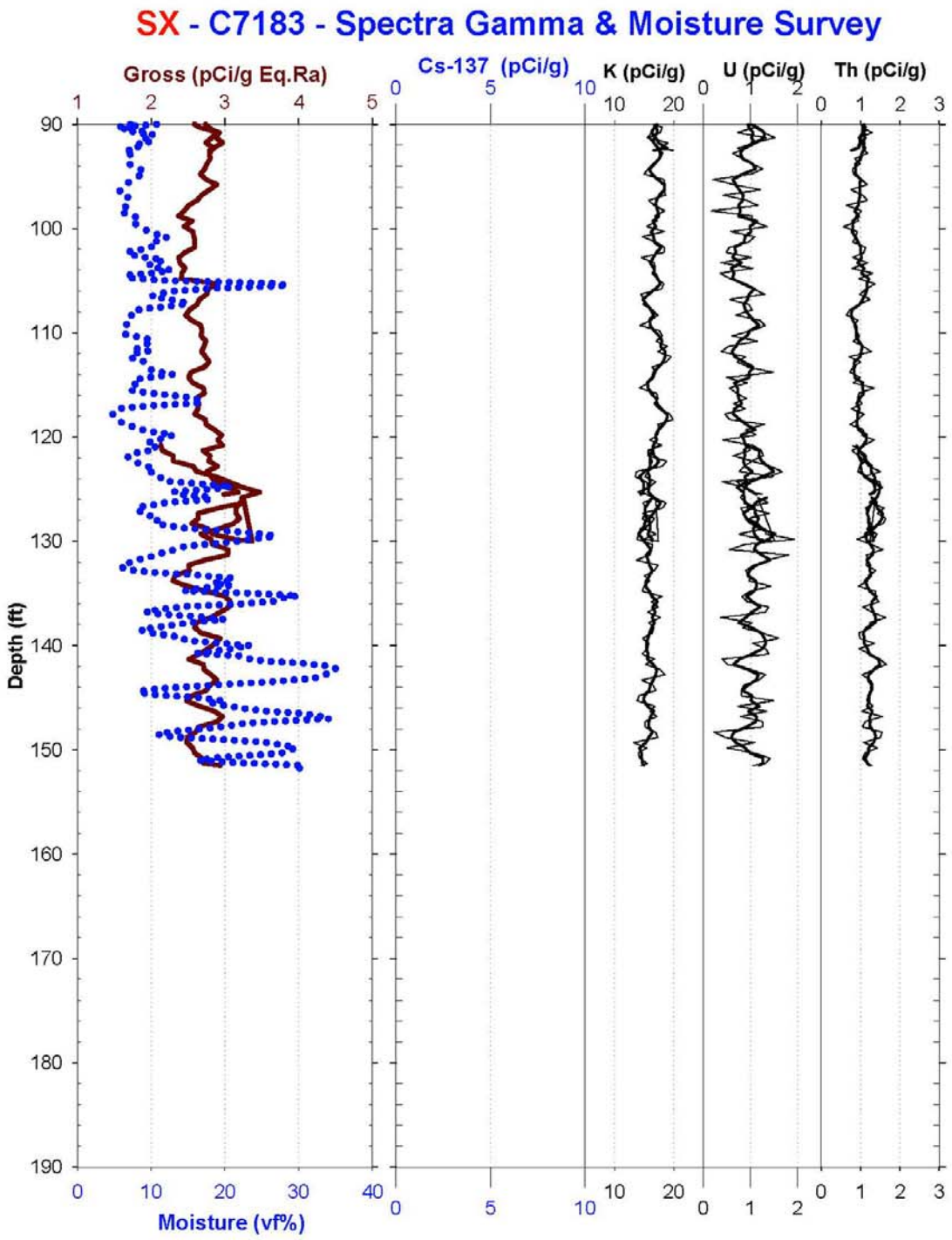
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7183 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-30


SX - C7183 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-31

SX-FARM C7185 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7185	Log Date:	Jul 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	108-104	Moisture	86-76
	109-104		65-55
	64-59		
	47-42		
	10-4		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 observed from 18-0 ft and a maximum reading of 7.5pCi/g at 5.7 ft. No flag is statistically present for the detection of other isotopes in addition to the ones listed above.

Moisture:

Moisture values range from 3-34%. There is laminated structure in alternating thin beds from 105-154 ft.

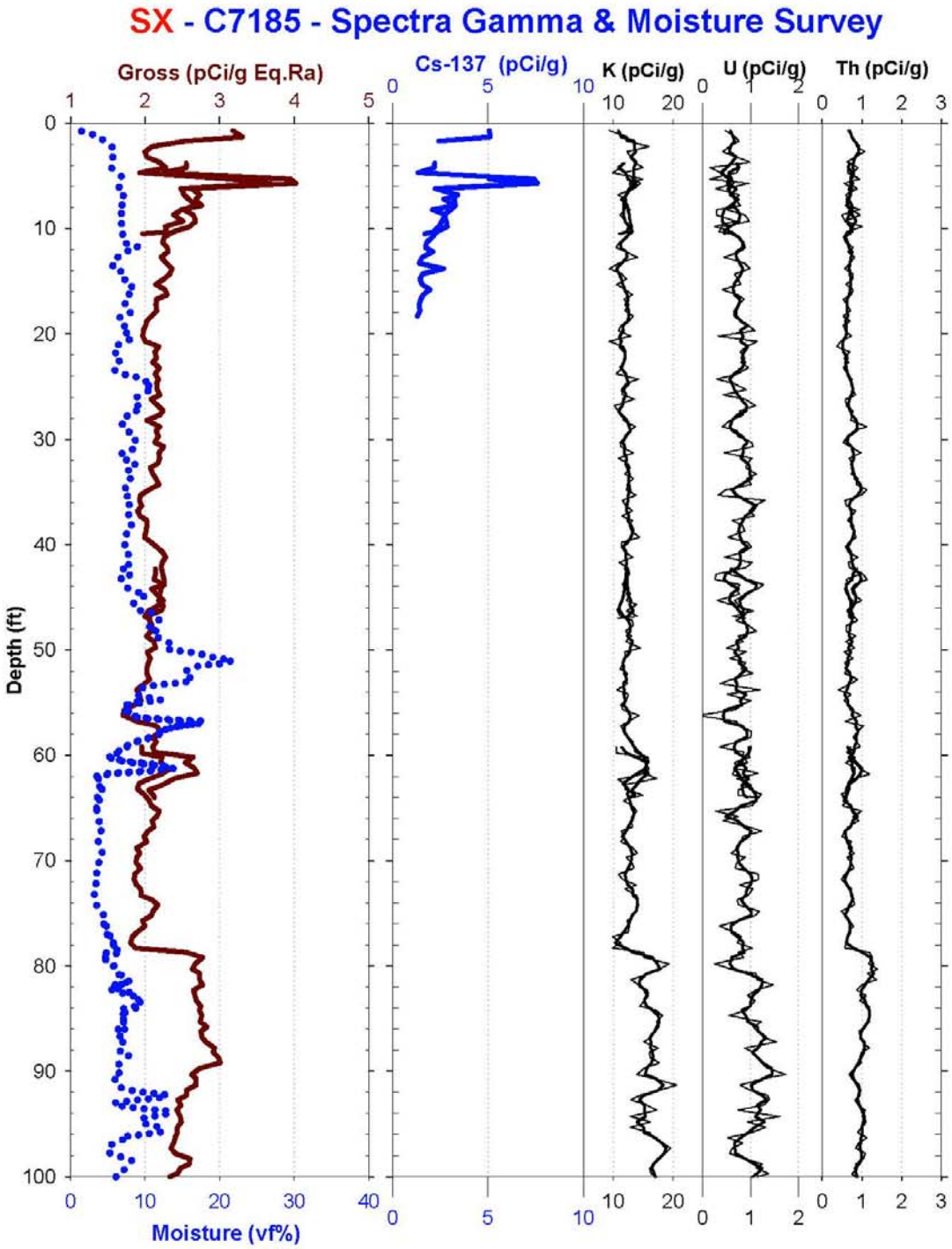
CALIBRATION CERTIFICATES

Spectral

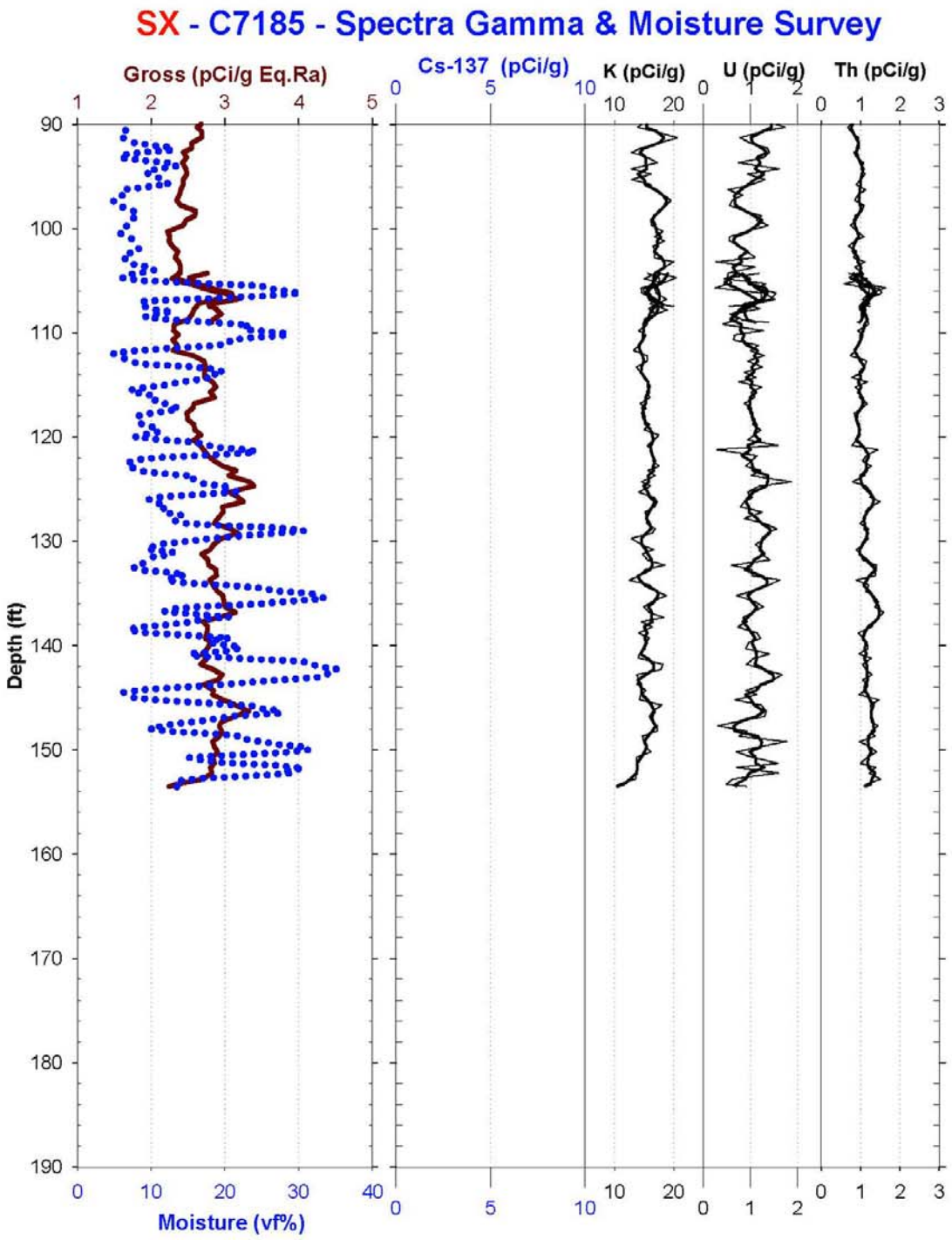
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7185 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-33


SX - C7185 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

SX-FARM C7191 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7191	Log Date:	June 2009
Project:	SX Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	104-98	Moisture	83-78
	97-92		76-71
	61-57		5-0
	57-41		
	10-5		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

Cs-137 observed at only one depth location of 0.8 ft and a reading of 2.5pCi/g. From 12-16ft and 30-37ft exists a flag for low energy gamma activity not from isotopes analyzed.

Moisture:

Moisture values range from 3.7-31.7%. There is laminated structure in alternating thin beds from 125-150 ft.

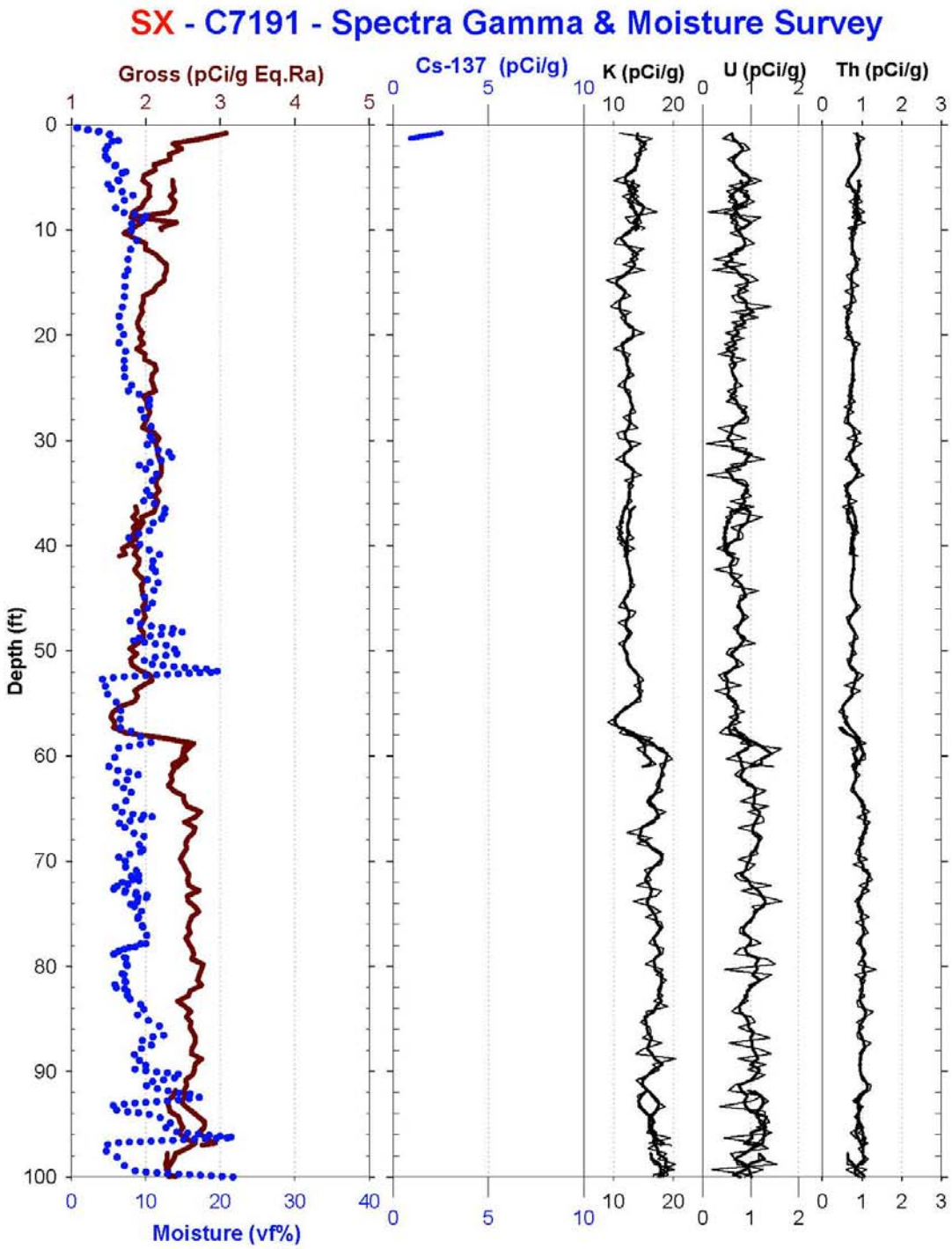
CALIBRATION CERTIFICATES

Spectral

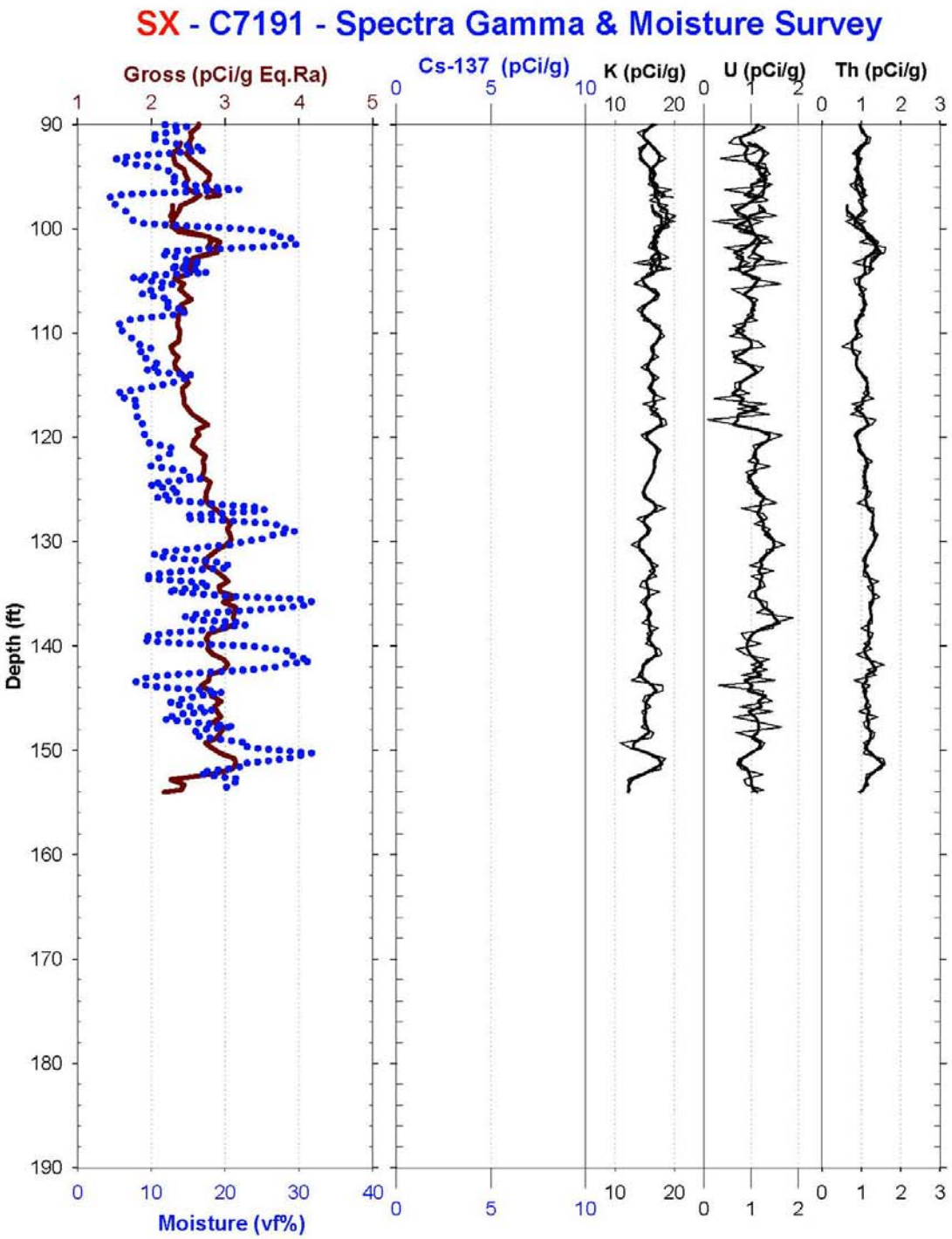
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip

Moisture

Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


SX - C7191 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-36


SX - C7191 - Spectra Gamma & Moisture Survey
Gross (pCi/g Eq.Ra)
Cs-137 (pCi/g)
K (pCi/g)
U (pCi/g)
Th (pCi/g)
Depth (ft)
Moisture (vf%)

A-37

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APPENDIX E

CHAIN OF CUSTODY FORMS AND FIELD LOGBOOK ENTRIES

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Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-004 **SAF TITLE** Direct Push Samples for SX Interim Barrier **REV** 1

PROJECT	SX Tank Farm
PROGRAM/PROJECT TYPE	Baseline Inform Characterization
OPERABLE UNIT	NONE

REQUESTER	SYDNOR, HA	**CHARGE CODES**	
TASK MANAGER	CONNELLY, MP	CHPRC Field Samplers	301483ES10
PROJECT COORDINATOR	WIDRIG, DL	Sample Management	301483ES30

ESTIMATED START DATE	4/6/2009	**SAMPLE AREA**	200 West
ESTIMATED COMPLETION DATE	9/30/2009	**MATRIX**	SOIL
ESTIMATED NUMBER OF SAMPLES	72		

SAMPLING ORGANIZATIONS

CHPRC Samplers

LABORATORY/PRICE_CODE/PRIORITY TURNAROUND/REQUIRED TURNAROUND/DATA DELIVERABLE

Primary / 222-S Lab Operations / 2B / 48 Hours / 15 Days / Interim Results & Periodic SDG Rpt
Primary / 222-S Lab Operations / 8P / 75 Days / 75 Days / Summary

SAF COMMENT

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Nitrate, Alkalinity, and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 125 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

SAF REVISION COMMENT

** Revision 1 made to update bottle requirents for Minimum volume bottle.

COC COMMENT

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 125 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-004 **SAF TITLE** Direct Push Samples for SX Interim Barrier **REV** 1

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: SOIL**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
Rad Screen No CAS	RADSCREEN	G/P 60 mL	Full QC	None	6 Months
2320_ALKALINITY (TF) Alkalinity	2320_ALKALINITY	G/P 125 mL	Minimum	Cool~4C	14 Days
RADISO_ICPMS_WE (TF) Technetium-99	RADISO_ICPMS_WE		Minimum		6 Months
IC Anions - 9056 (Tier 1) Nitrate	9056_ANIONS_IC		Minimum		28 Days/48 Hours
6010M_ICP_AE (TF) Arsenic, Bismuth, Boron, Lead, Sulfur, Tin, Sodium, Aluminum, Antimony, Barium, Chromium, Cobalt, Iron, Potassium, Cadmium, Copper, Rhenium, Beryllium, Molybdenum, Strontium, Thallium, Yttrium, Zinc, Zirconium, Calcium, Manganese, Nickel, Titanium, Vanadium, Lithium, Magnesium, Phosphorus, Selenium, Silicon, Silver, Uranium	6010M_ICP_AE	Liner 160 mL	Full QC	None	6 Months
6010M_ICP_WE (TF) Arsenic, Bismuth, Boron, Lead, Sulfur, Tin, Sodium, Aluminum, Antimony, Barium, Chromium, Cobalt, Iron, Potassium, Cadmium, Copper, Rhenium, Beryllium, Molybdenum, Strontium, Thallium, Zinc, Zirconium, Yttrium, Calcium, Manganese, Nickel, Titanium, Vanadium, Lithium, Magnesium, Phosphorus, Selenium, Silicon, Silver, Uranium	6010M_ICP_WE		Full QC		6 Months
IC Anions - 9056 Nitrate, Bromide, Chloride, Fluoride, Phosphate, Nitrite, Sulfate	9056_ANIONS_IC		Full QC		28 Days/48 Hours
ALPHA_BETA_LSC_AE (TF) Gross beta, Gross alpha	ALPHA_BETA_LSC_AE		Full QC		6 Months
ALPHA_BETA_LSC_WE (TF) Gross beta, Gross alpha	ALPHA_BETA_LSC_WE		Full QC		6 Months
RADISO_ICPMS_ASTM_AE Neptunium-237, Americium-241, Uranium-238, Plutonium-239, Technetium-99	RADISO_ICPMS_ASTM_AE		Full QC		6 Months
RADISO_ICPMS_WE (TF) Antimony-121, Arsenic-75, Copper-65, Iodine-129, Chromium-53, Ruthenium-101, Cadmium-114, Molybdenum-97, Molybdenum-98, Silver-107, Uranium-238, Copper-63, Ruthenium-104, Silver-109 metastable, Chromium-52, Lead-208, Ruthenium-102, Selenium-82, Technetium-99, Antimony-123, Cadmium-111, Lead-206, Molybdenum-95	RADISO_ICPMS_WE		Full QC		6 Months
GAMMA ENERGY ANALYSIS (Tier 1) Europium-155, Cesium-137, Europium-154, Antimony-125, Europium-152, Cobalt-60	GAMMA_GS		Full QC		6 Months
Conductivity - 9050 (Tier 1) Specific Conductance	120.1_CONDUCT		Full QC		28 Days
Percent Solids (TF) Percent Solids	%SOLIDS		Full QC		None
Percent Water (TF) Percent moisture (wet sample)	D2216_%MOIS		Full QC		None
pH (Soil) - 9045 (Tier 1) pH Measurement	9045_PH		Full QC		ASAP

Key to Container Types

G = Glass
Gs = Glass w/ septum cap
Gs* = Glass w/ septum cap- no head space in container
P = Plastic (Polyethylene)
aG = Amber Glass
aGs = Amber Glass w/ septum cap
aGs* = Amber Glass w/ septum cap- no head space in container
aG/T = Amber Glass w/ Teflon Lined Lid

DATE OF PRINT 10/28/2009 SAF STATUS Revision Issued STATUS DATE 5/26/2009 10:08:00 PAGE 2 of 2

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-005 **SAF TITLE** Direct Push Samples for SX Interim Barrier QC Sample **REV** 0

PROJECT	SX Tank Farm		
PROGRAM/PROJECT TYPE	Baseline Inform Characterization		
OPERABLE UNIT	NONE		
REQUESTER	SYDNOR, HA	**CHARGE CODES**	
TASK MANAGER	CONNELLY, MP	CHPRC Field Samplers	301483ES10
PROJECT COORDINATOR	WIDRIG, DL	Sample Management	301483ES30
ESTIMATED START DATE	4/6/2009	**SAMPLE AREA**	200 West
ESTIMATED COMPLETION DATE	9/30/2009	**MATRIX**	WATER
ESTIMATED NUMBER OF SAMPLES	3		

SAMPLING ORGANIZATIONS

CHPRC Samplers

LABORATORY/PRICE_CODE/PRIORITY TURNAROUND/REQUIRED TURNAROUND/DATA DELIVERABLE

Primary / 222-S Lab Operations / 7P / 75 Days / 75 Days / Summary

SAF COMMENT

These are Equipment Rinsate Blanks and will be taken for every 20 Tier 1 soil samples

SAF REVISION COMMENT

COC COMMENT

These are Equipment Rinsate Blanks and will be taken for every 20 Tier 1 soil samples

DATE OF PRINT 10/28/2009 SAF STATUS NONE STATUS DATE PAGE 1 of 2

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-005 **SAF TITLE** Direct Push Samples for SX Interim Barrier QC Sample **REV** 0

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: WATER**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
ICP Metals - 6010 (SW-846) (TF)	6010_METALS_ICP	G/P 500 mL	Full QC	HNO3 to pH <2	6 Months
Arsenic, Bismuth, Boron, Lead, Sulfur, Tin, Sodium, Barium, Aluminum, Antimony, Chromium, Cobalt, Iron, Potassium, Rhenium, Cadmium, Copper, Beryllium, Molybdenum, Strontium, Thallium, Yttrium, Zinc, Zirconium, Calcium, Manganese, Nickel, Vanadium, Titanium, Lithium, Magnesium, Phosphorus, Selenium, Silicon, Silver, Uranium					
IC Anions - 9056	9056_ANIONS_IC	G/P 250 mL	Full QC	Cool~4C	28 Days/48 Hours
Nitrate, Bromide, Chloride, Fluoride, Phosphate, Nitrite, Sulfate					
2320_ALKALINITY (TF)	2320_ALKALINITY	G/P 500 mL	Full QC	Cool~4C	14 Days
Alkalinity					
ALPHA_BETA_LSC (TF)	ALPHA_LSC	G/P 500 mL	Full QC	None	6 Months
Gross alpha					
ALPHA_BETA_LSC (TF)	BETA_LSC	G/P 500 mL	Full QC	None	6 Months
Gross beta					
RADISO_ICPMS (TF)	RADISOTOPES_ICPMS	Nalgene 500 mL	Full QC	HNO3 to pH <2(ULTREX)	None
Antimony-121, Arsenic-75, Copper-65, Iodine-129, Neptunium-237, Chromium-53, Ruthenium-101, Americium-241, Cadmium-114, Molybdenum-97, Molybdenum-98, Silver-107, Uranium-238, Copper-63, Ruthenium-104, Silver-109 metastable, Chromium-52, Lead-208, Plutonium-239, Ruthenium-102, Selenium-82, Technetium-99, Antimony-123, Cadmium-111, Lead-206, Molybdenum-95					
GAMMA ENERGY ANALYSIS (Tier 1)	GAMMA_GS	G/P 500 mL	Full QC	HNO3 to pH <2	6 Months
Europium-155, Cesium-137, Europium-154, Antimony-125, Europium-152, Cobalt-60					
Conductivity - 9050 (Tier 1)	120.1_CONDUCT	G/P 500 mL	Full QC	Cool~4C	28 Days
Specific Conductance					
pH (Water) - 9040 (TF)	9040_PH	P 125 mL	Full QC	None	ASAP
pH Measurement					

Key to Container Types

G = Glass
Gs = Glass w/ septum cap
Gs* = Glass w/ septum cap- no head space in container
P = Plastic (Polyethylene)
aG = Amber Glass
aGs = Amber Glass w/ septum cap
aGs* = Amber Glass w/ septum cap- no head space in container
aG/T = Amber Glass w/ Teflon Lined Lid

DATE OF PRINT 10/28/2009 SAF STATUS NONE STATUS DATE PAGE 2 of 2

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-001	PAGE 1 OF 1
COLLECTOR: Kauer, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7154; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 PS22	ACTUAL SAMPLE DEPTH: 74 to 76'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

33°

SPECIAL HANDLING AND/OR STORAGE
22252C090372

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206P6	SOIL	8-13-09	0945	✓
509V001192				
~~1193~~				
~~1194~~				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, [signature]	8-13-09 1400	[signature] RAStegle	8-13-09 1400

SPECIAL INSTRUCTIONS
There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 mL~~ 125mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-004-002	PAGE 1 OF 2

COLLECTOR: Kauer / Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P; DATA TURNAROUND
SAMPLING LOCATION: C7154; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐; 75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 Pg 22	ACTUAL SAMPLE DEPTH: 74' to 76'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

33°

SPECIAL HANDLING AND/OR STORAGE: 222S20090372

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206P7	SOIL	08-13-09	0945	✓
509000 1195	A			
1196	B			
1197	C			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Edward Stellar	8-13-09 1400	R.L. Steele	8.13.09 1400

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-002	PAGE 2 OF 2
COLLECTOR Kane Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7154; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. PS 22 HNF-N-503-2	ACTUAL SAMPLE DEPTH 74 to 76'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

24

C7154 SX FARMS HNF-N-503-2 pg 24
Date: 8-18-09 Weather 70°F to 85°F 0-5mph
NCO's Kauer, Rust Wind, Sunny
Drillers - ES RWP- CO - ~~460~~ 511
HPT -
FWS - Bill Clark
0715 - ON SITE Pre-Job, Sign-in
0920 - Completed I-002 @ 106' to 108'
B206P8 V09-004-003 } 222's Labs
B206P9 V09-004-004 }
1400 - Delivered Samples to LABS (222's LAB)
per Blue card # 5
1430 - Broken Casting on well C7154 per Bill Clark
No more Samples on this well
1500 - No further Entries this Date [signature]

EE 8-18-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-18-09/0920
SAF NO.(S) V09-004	
LOCATION C7154; I-002	LOGBOOK NO./PAGE HNF-N-503-2 PG 24
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH / 106 to 108 ☑ft ☐m
BOTTOM OF CASING (bgs) 106' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 108' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR KAUGR, Rust

222-S V09-004-003

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206P8	1 / ~~500mL~~ 125mL / G/P EL 8-13-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-004

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206P9	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Brown Clay and Sand

FIELD OBSERVATIONS

WEATHER 82°F 0-5 mph wind Sunny

FIELD COMMENTS ALL 3 Liners Full 100%

SUPPORT PERSONNEL HPT, Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #5

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Ed Kaugr (PRINT NAME) [signature] (SIGN NAME) 8-18-09 (DATE)

CHECKED BY RW Plunkett (PRINT NAME) CHPRC [signature] (SIGN NAME) 8-18-09 (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:35:25 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-003	PAGE 1 OF 1
COLLECTOR: Kauer, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7154; 1-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: PS 24 HNF-N-503-2	ACTUAL SAMPLE DEPTH: 106 to 108	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

57

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 ~~2L~~ mL 8-17-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206P8	SOIL	8-18-09	09:20	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, [signature]	8-18-09 1400	R Allan Ristcole	8/18/09 1400

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 mL~~ 125 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-004	PAGE 1 OF 2
COLLECTOR: Kauer, Rost	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7154; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: PS 24 HNF-N-503-2	ACTUAL SAMPLE DEPTH: 106 to 108'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

53'

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206P9	SOIL	8-18-09	0920	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, [signature]	8-18-09 1400	RHSteele, RHSteele	8-18-09 1400

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-004	PAGE 2 OF 2
COLLECTOR Kacz, Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7154; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. —	FIELD LOGBOOK NO. 8924 HNF-N-563-2	ACTUAL SAMPLE DEPTH 106' to 108'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tiar 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

21

C7156 SX Farms HNF-N-503-2 Page 27
Date 8-31-09 Weather 78°F Clear Calm
NCO's Rust, White RWP-CO-511 Rev 2 WW2
FWS Clark RSR Site-03-Excepted #5
Drillers Energy Solutions HPT-Young
07:30 On site, POD completed Work Package Signed
Gave Sample assembly to drillers.
0915 Collected I-001 Sample B206R2 + B206R3
100% Recovery Sampled from GRP-FS-04-G-029 °/C
92-94 feet depth. V09-004-007 & V09-004-008
HPT Survey Number C00-005890.
1250 Collected I-002EB-B20766, V09-005-001.
Equipment staged for I-002 in Gamby.
1315 Transported I-001 + I-002EB samples to
222-S per GRP-FS-04-G-012 1/2 and
RSR Site-03-Excepted #5
1500 No Further Entries this Day

8-31-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier QC Sample		PAGE 1 OF 2	
		DATE/TIME 8-31-09/1250	
SAF NO.(S) V09-005			
LOCATION C7156; I-002EB	LOGBOOK NO./PAGE HNF-N-503-2 pg ~~57~~ 27 8-31-09		
WELL NAME N/A	WELL ID C7156	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 8	TOTAL NUMBER OF CHAINS 1	COLLECTOR White	

222-S V09-005-001

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20766	1 / 500mL / G/P	030014 ~~035480~~ 8-31-09	HNO3 to pH <2	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B20766	1 / 250mL / G/P	035273	Cool~4C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS
B20766	1 / 500mL / G/P	035480	Cool~4C	2320_ALKALINITY (TF) {Alkalinity}
B20766	1 / 500mL / G/P	035480	None	ALPHA_BETA_LSC (TF) {Gross alpha, Gross beta}
B20766	1 / 500mL / Nalgene	035499	HNO3 to pH <2(ULTREX)	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
B20766	1 / 500mL / G/P	030014	HNO3 to pH <2	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
B20766	1 / 500mL / G/P	035480	Cool~4C	SEE ITEM (5) IN SPECIAL INSTRUCTIONS
B20766	1 / 125mL / P	030308	None	pH (Water) - 9040 (TF) {pH Measurement}

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FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier QC Sample	PAGE 2 OF 2
	DATE/TIME 8-31-09 / 1250
SAF NO.(S) V09-005	
LOCATION C7156; I-002EB	LOGBOOK NO./PAGE HNF-N-503-2 p 27
WELL NAME N/A	WELL ID C7156 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 8 TOTAL NUMBER OF CHAINS 1 COLLECTOR White

FIELD INFORMATION

PURGE RATE N/A ☐ gpm ☐ Lpm	TIME ON	TIME WATER	TIME PURGE	TIME SAMP	TIME OFF
PURGE VOLUME REQUIRED N/A ☐ gal ☐ L	N/A	N/A	N/A	1250	N/A

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☒ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

FIELD MEASUREMENTS

SAMPLE NO.											
TIME											
pH (unitless)											
TEMP ☐°F ☐°C											
COND (µs/cm)											
TURB. (NTU)											
D.O. (mg/L)											
ORP (mV)											

N/A
M A White
8-31-09

FIELD OBSERVATIONS

WEATHER 70° F Indoors

FIELD COMMENTS

N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☒ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	M A White	M A White	8-31-09
CHECKED BY	Steve Rust	[signature]	8-31-09

PRINTED BY TMJOHANS ON 4/22/2009 3:34:54 PM A-6004-700 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-005-001	PAGE 1 OF 2
COLLECTOR: White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7156; I-002EB	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier QC Sample		SAF NO.: V09-005	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2	ACTUAL SAMPLE DEPTH: N/A	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

222S20090372

SPECIAL HANDLING AND/OR STORAGE: 64°F

PRESERVATION	HNO3 to pH <2	Cool~4C	Cool~4C	None	HNO3 to pH <2(ULTREX)	HNO3 to pH <2	Cool~4C	None		
TYPE OF CONTAINER	G/P	G/P	G/P	G/P	Nalgene	G/P	G/P	P		
NO. OF CONTAINER(S)	1	1	1	1	1	1	1	1		
VOLUME	500mL	250mL	500mL	500mL	500mL	500mL	500mL	125mL		
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS ✓	SEE ITEM (2) IN SPECIAL INSTRUCTIONS ✓	2320_ALKALINITY (TF) (Alkalinity) ✓	ALPHA_BETA_LSC (TF) (Gross alpha, Gross beta) ✓	SEE ITEM (3) IN SPECIAL INSTRUCTIONS ✓	SEE ITEM (4) IN SPECIAL INSTRUCTIONS ✓	SEE ITEM (5) IN SPECIAL INSTRUCTIONS ✓	pH (Water) - 9040 (TF) (pH Measurement) ✓		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B20766	WATER	8-31-09	1250	✓	✓	✓	✓	✓	✓	✓	✓		
S09G001264 to 1271													

CHAIN OF POSSESSION — SIGN/ PRINT NAMES 64°F

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
MA White MA White	8-31-09 1325	TA Collard	8/31/09 @ 1325

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-005-001	PAGE 2 OF 2
COLLECTOR White	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 7P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7156; I-002EB	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier QC Sample		SAF NO. V09-005		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-2	ACTUAL SAMPLE DEPTH N/A	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

(1)ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium}

(2)IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

(3)RADISO_ICPMS (TF) {Americium-241, Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Neptunium-237, Plutonium-239, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238}

(4)GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

(5)Conductivity - 9050 (Tier 1) {Specific Conductance}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-31-09 0915
SAF NO.(S) V09-004	
LOCATION C7156; I-001	LOGBOOK NO./PAGE HNF-N-503-2 page 27
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 92-94 ☒ft ☐m
BOTTOM OF CASING (bgs) 94 ☒ft ☐m	BOTTOM OF BOREHOLE (bgs) 94 ☒ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rust, White

222-S V09-004-007

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R2	1 / ~~500mL~~ 8-27-09 125mL / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-008

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R3	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☒ 222-S ☐ MO-612 ☐ 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.)]

Damp Sand No odor

FIELD OBSERVATIONS

WEATHER 80°F Clear Calm

FIELD COMMENTS 100% Recovery

SUPPORT PERSONNEL FWS Crank Drillers Energy Solutions HPT-Young

SAMPLES SURVEYED BY RCT ☒ YES ☐ NO

IS A BLUE CARD REQUIRED ☒ YES ☐ NO BLUE CARD NO Site-03-Excavated #

IS SRS PROVIDED AND COMPLETE ☐ YES ☒ NO N/A

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Steve Rust	[signature]	8-31-09
CHECKED BY	MA White	MA White	8-31-09

PRINTED BY TMJOHANS ON 4/22/2009 12:35:39 PM A-6004-701 (REV.0)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-007	PAGE 1 OF 1
COLLECTOR: Rust, White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7156; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2p27	ACTUAL SAMPLE DEPTH: 92-94 feet	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

222SQ0090372

SPECIAL HANDLING AND/OR STORAGE
29°F

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206R2	SOIL	8-31-09	0915	✓
S09V001258				

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES** 29°F

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Steve Rust [signature] Caulan 8-31-09	1325	Tm-Collach [signature]	8/31/09 @ 1325

SPECIAL INSTRUCTIONS
There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-008	PAGE 1 OF 2
COLLECTOR: Rust, Widrig	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7156; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2, pg 27	ACTUAL SAMPLE DEPTH: 92-94 feet	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

2225 2009 0372

SPECIAL HANDLING AND/OR STORAGE: 29°F

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	150g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B206R3	SOIL	8-31-09	09:5
569U001261	liner A		
1262	liner B		
1263	liner C		

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[illegible] Rodden 8-31-09		TM Collach	8/31/09 @ 1325

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-5003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-008	PAGE 2 OF 2
COLLECTOR Rust, White	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7156; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-14-503-2, p. 27	ACTUAL SAMPLE DEPTH 92-94 feet	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta}
RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solics} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

CT156 SX Farms HNF-N-503-2 page 28
Date 9-1-09 Weather 80° cloudy wind 5-10 mph
DOE's Rust, white RWP CD-511 rev 2
FWS, Clark RSR Site-03-Excavated #4
Driller Energy Solutions
HPT Young & Mincey
0715 On site POD completed Work Package
Signed Gas Sample Assembly to Drillers
0850 Collected I-002 Per GRP-FS-04-G-129 0/2
B206R4 + B206R5, V09-004-009 +
V09-004-010 126-128 feet 100% Recovery
1330 Collected I-003 Per GRP-FS-04-G-129 0/2
B206R6-V09-004-011 + B206R7-V09-004-
140-142 feet 100% Recovery HPT Surveyed
per survey # C00-005895
1400 Transported to 222-S Per GRP-FS-04-012 1/2
and RSR Site-03-Excavated #40
1430 Dropped off Equipment to be cleaned at cleaning
station
1450 Dropped off Gamma Pencils at ACES station
1515 No further Entries this Date.

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 9-1-09 0850
SAF NO.(S) V09-004	
LOCATION C7156; I-002	LOGBOOK NO./PAGE HNF-N-503-2 pg 28
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 126-128 ☒ft ☐m
BOTTOM OF CASING (bgs) 128 ☒ft ☐m	BOTTOM OF BOREHOLE (bgs) 128 ☒ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rust, White

222-S V09-004-009

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R4	1 / ~~500mL~~ 8-27-oz / G/P 125 mL	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-010

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R5	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☒ 222-S ☐ MO-612 ☐ 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.)]

moist silt

FIELD OBSERVATIONS

WEATHER 80°F Cloudy wind 5-10 mph

FIELD COMMENTS 100% Recovery

SUPPORT PERSONNEL FWS, Clark HPT Widdis Driller Energy Solutions

SAMPLES SURVEYED BY RCT ☒ YES ☐ NO

IS A BLUE CARD REQUIRED ☒ YES ☐ NO BLUE CARD NO Site-03-Excepted #40

IS SRS PROVIDED AND COMPLETE ☐ YES ☒ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Steve Rust	[signature]	9-1-09
CHECKED BY	Mitzi White	[signature]	9-1-09

PRINTED BY TMJOHANS ON 4/22/2009 12:35:46 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-009	PAGE 1 OF 1
COLLECTOR: Rob. White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 28	DATA TURNAROUND
SAMPLING LOCATION: C7156; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 p28	ACTUAL SAMPLE DEPTH: 126-128	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206R4	SOIL	9-1-09	0850	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	9-1-09 1410	[signature]	9-1-09 @ 1410

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-010	PAGE 1 OF 2
COLLECTOR: Rust White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7156; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 p 28	ACTUAL SAMPLE DEPTH: 126-128	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206R5	SOIL	9-1-09	08:50	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Rust White	9-1-09 1410	TM Collach	9-1-09 @ 1410
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-010	PAGE 2 OF 2
COLLECTOR Rust, White	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7156; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HMF-N-503-2 p28	ACTUAL SAMPLE DEPTH 126-128	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 9-1-09 13:30
SAF NO.(S) V09-004	
LOCATION C7156; I-003	LOGBOOK NO./PAGE HNF-N-503-2p28
WELL NAME N/A	WELL ID C7156 ACTUAL DEPTH 140-142 [X] ft [ ] m
BOTTOM OF CASING (bgs) 142 [X] ft [ ] m	BOTTOM OF BOREHOLE (bgs) 142 [X] ft [ ] m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2	COLLECTOR Rust White

222-S V09-004-011

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R6	1 / ~~500mL~~ 125 mL / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-012

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R7	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? [ ] WSCF [X] 222-S [ ] MO-612 [ ] MO-745 [ ] 6269 [ ] OTHER

CONTAINER/DRUM/TOTE/BOX N/A

SAMPLE MATRIX DESCRIPTION [X] SOIL [ ] SLUDGE [ ] RESIN [ ] GAC [ ] FILTER PAPER [ ] OTHER

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

Wet Plastic Clay

FIELD OBSERVATIONS

WEATHER 92°F Hazy Wind 5-10mph

FIELD COMMENTS 100% Recovery

SUPPORT PERSONNEL FWS, Clark Drillers Energy Solutions HPT-

SAMPLES SURVEYED BY RCT [X] YES [ ] NO

IS A BLUE CARD REQUIRED [X] YES [ ] NO BLUE CARD NO Site-03-Excepted #40

IS SRS PROVIDED AND COMPLETE [ ] YES [X] NO N/A

RECORDED BY Steve Rust (PRINT NAME) [signature] (SIGN NAME) 9-1-09 (DATE)

CHECKED BY Mitzi White (PRINT NAME) Mitzi White (SIGN NAME) 9-1-09 (DATE)

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Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-011	PAGE 1 OF 1
COLLECTOR: Rust, White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7156; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2, p23	ACTUAL SAMPLE DEPTH: 140 - 142 feet	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206R6	SOIL	9-1-09	13:30	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Steve Rust	9-1-09 1410	T. McCollock	9-1-09 @ 1410

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-012 PAGE 1 OF 2

COLLECTOR: Rust, White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7156; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 p 28	ACTUAL SAMPLE DEPTH: 140 - 142 feet	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 8P

AIR QUALITY: ☐

DATA TURNAROUND: 75 Days / 75 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206R7	SOIL	9-1-09	13:30	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Steve Rust [signature] Coolan	9-1-09 1410	T McGlloch [signature]	9-1-09 @ 1410

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-012	PAGE 2 OF 2
COLLECTOR Rust, White	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7156; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. BNF-MS-503-2,528	ACTUAL SAMPLE DEPTH 140-142 feet	COA 301483E510	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a 'Quick Turn' Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

25

C-7158 SX FARMS HNF-N-503-2 pg24
Date: 8-20-09 weather 95°F 0-5 mph wind
NCS - Kause, Rust Sunny
FWS - Bill Clark RWP CO-511
07:00 On site, Pre-Job, Sign-in
12:00 completed I001 @ 89' to 89'
B206R8 V09-004-013 } 222-S LABS
B206R9 V09-004-014 }
All 3 Liners full 100%
Field Readings Below Background
1400 - Delivered Samples to 222-S LABS
per Blue Card #5
1424 - No Further Entries this Date

Eh
8-20-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-20-09/ 1200
SAF NO.(S) V09-004	
LOCATION C7158; I-001	LOGBOOK NO./PAGE HNF-N-503-2 PG 25
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 87' to 89' ☑ft ☐m
BOTTOM OF CASING (bgs) 87 ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 89 ☑ft ☐m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2	COLLECTOR Kauer, Rust

222-S V09-004-013

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R8	1 / ~~500mL~~ 125mL / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-014

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206R9	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Sand, Gravel, Clay

FIELD OBSERVATIONS

WEATHER 95°F 0-5 mph wind, Sunny

FIELD COMMENTS ALL 3 liners full 100%

SUPPORT PERSONNEL HPT, Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #5

IS SRS PROVIDED AND COMPLETE ☑ YES ☑ NO

RECORDED BY Ed Kauer (PRINT NAME) [signature] (SIGN NAME) 8-20-09 (DATE)

CHECKED BY RW Plunkett (PRINT NAME) CHPRC [signature] (SIGN NAME) 8-20-09 (DATE)

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Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-013 PAGE 1 OF 1

COLLECTOR: KAUER, RUST	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B
SAMPLING LOCATION: C7158; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 PG 25	ACTUAL SAMPLE DEPTH: 87' to 89'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

DATA TURNAROUND: 48 Hours / 15 Days

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

44°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500ml~~ 125ml 8-14-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206R8	SOIL	8-20-09	1200	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer / [signature]	8-20-09 1400	[signature] RTSteele	8-20-09 1400

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 ml bottle~~ 125 ml 8-14-09. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | V09-004-014 | PAGE 1 OF 2

COLLECTOR: Kraus, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: BP	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7158; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier	SAF NO.: V09-004	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: PE25 HNF-N-503-2	ACTUAL SAMPLE DEPTH: 87' to 89'	COA: 30148JES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE	SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A

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 may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206R9	SOIL	8-20-09	1200	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kraus/[illegible]	8-20-09 1400	[illegible] RJSteele	8-20-09 1400

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-014	PAGE 2 OF 2
COLLECTOR Kauer, Rust	**COMPANY CONTACT** CONNELLY, MP	**TELEPHONE NO.** 373-3981	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7158; I-001	**PROJECT DESIGNATION** Direct Push Samples for SX Interim Barrier		**SAF NO.** V09-004	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO. —	**FIELD LOGBOOK NO.** PS 25 HNF-N-503-2	**ACTUAL SAMPLE DEPTH** 87' to 89'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

26

C7158 SX Farms HNF-N-503-2 page 26
Date 8-25-09 weather 74°F clear wind 0-5 mph
NCO's Rust, White RWP-CO-511 Rev 2
FWS Clark RSR site-03-Excepted #5
Driller Energy solutions
HPT-Mincey
0730 On site dropped off sample assembly signed
work Package Acid-CO-511 rev 2
0850 Collected I-002 B206T0 + B206T1 100% Retrieval
124-126 feet moist silt per GRP-FS-04-G-029-0/c
1210 Collected I-003 B206T2 + B206T3 100% Retrieval
141-143 feet moist silt per GRP-FS-04-G-029-0/c
1230 left site
1420 Delivered samples to 222-S labs without incident
Per RSR site-03-Excepted #5 and GRP-FS-04-G-012
Rev 1 chg 2
1450 No further entries this date

8-25-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-25-09 0850
SAF NO.(S) V09-004	
LOCATION C7158; I-002	LOGBOOK NO./PAGE HNF-N-503-2 pg 26
WELL NAME N/A	WELL ID C7158 ACTUAL DEPTH 124-126 ☒ft ☐m
BOTTOM OF CASING (bgs) 126 ☒ft ☐m	BOTTOM OF BOREHOLE (bgs) 126 ☒ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rust / White

222-S V09-004-015

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206T0	1 / ~~500ml~~ 125-ml / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-016

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206T1	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☒ 222-S ☐ MO-612 ☐ 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.)]

Silty Salty Clay

FIELD OBSERVATIONS

WEATHER 74°F Sunny NO WIND

FIELD COMMENTS 100% retrieved

SUPPORT PERSONNEL FWS - Clark RCT - Jim Mincey

SAMPLES SURVEYED BY RCT ☒ YES ☐ NO

IS A BLUE CARD REQUIRED ☒ YES ☐ NO BLUE CARD NO Site-03-excepted 5

IS SRS PROVIDED AND COMPLETE ☐ YES ☒ NO N/A

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	MA White	M.A. White	8-25-09
CHECKED BY	Steve Rust	[signature]	8-25-09

PRINTED BY TMJOHANS ON 4/22/2009 12:36:06 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-004-015	PAGE 1 OF 1

COLLECTOR: Rust, White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7158; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier	SAF NO.: V09-004	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 26	ACTUAL SAMPLE DEPTH: 124-126	COA: 301483ES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE			
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 372 [illegible] 222S20090612

PRESERVATION	Cool-4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL 125mL 4x 9-250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206T0	SOIL	8-25-09	0850	✓
S09V001246				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	8-25-09 1420	[signature]	8/25/09 1420

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-004-016	PAGE 1 OF 2

COLLECTOR: Rust, W Mik	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7158; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier	SAF NO.: V09-004	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 p.26	ACTUAL SAMPLE DEPTH: 124-126	COA: 301483ES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE			
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
22252009037 2

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
S206T1	SOIL	8-25-09	0850	✓
S09V001249	A			
1250	B			
1251	C			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	8-25-09 1420	[signature]	8/25/09 1420

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618 (01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-016	PAGE 2 OF 2
COLLECTOR Rust, White	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7158; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-26	ACTUAL SAMPLE DEPTH 124-126	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-25-09 12:10
SAF NO.(S) V09-004	
LOCATION C7158; I-003	LOGBOOK NO./PAGE HNF-N-503-2 p 26
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 141-145 ☒ft ☐m
BOTTOM OF CASING (bgs) 143 ☒ft ☐m	BOTTOM OF BOREHOLE (bgs) 143 ☒ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rust, White

222-S V09-004-017

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206T2	1 / ~~500mL~~ 125mL / G/P 8-25-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-018

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206T3	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☒ 222-S ☐ MO-612 ☐ 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.)]

moist silt/clay

FIELD OBSERVATIONS

WEATHER 85°F clear wind 5-10mph

FIELD COMMENTS 100% Retrieval

SUPPORT PERSONNEL Fws-Clark HPT-Mincey Driller-Energy Solutions

SAMPLES SURVEYED BY RCT ☒ YES ☐ NO

IS A BLUE CARD REQUIRED ☒ YES ☐ NO BLUE CARD NO Site-03-Excepted #5

IS SRS PROVIDED AND COMPLETE ☐ YES ☒ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Steve Rust	[signature]	8-25-09
CHECKED BY	MA White	MA White	8-25-09

PRINTED BY TMJOHANS ON 4/22/2009 12:36:12 PM A-6004-701 (REV.0)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-017	PAGE 1 OF 1
COLLECTOR: Rust, White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7158; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: PZ6 HNF-N-503-2	ACTUAL SAMPLE DEPTH: 141-143 feet	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
222S20090372

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206T2	SOIL	8-25-09	12:10	✓
S09U001252				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Steve Rust [signature]	Wolcott 8-25-09 1420	Tim Gilloch [signature]	8/25/09 1420

SPECIAL INSTRUCTIONS
There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-018	PAGE 1 OF 2
COLLECTOR: Rust, White	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7158; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 p 24	ACTUAL SAMPLE DEPTH: 141-143	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
222S20090372

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B206T3	SOIL	8-25-09	12:10 ✓
S09001255	A		
56	B		
57	C		

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Steve Rust [signature] — [illegible] 8-25-09	1420	Tri Gillock [signature]	8/25/09 1420
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
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
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-018	PAGE 2 OF 2
COLLECTOR Rust White	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7158; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. VC9-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-2 p26	ACTUAL SAMPLE DEPTH 41 - 143 feet	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta}
RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-518(01/06)

C-7168 SX Farms
Date - 7-2-09
Weather - 80°F Sunny wind 5-10 mph
NCO - Rosane
Drillers - Energy Solutions
FWS - Bill Clark RWP CO-511 Rev 1
0700 - On site for pre-job sign in preparing new well C-7168 for sample I-001
0940 - Completed sample I-001 @ 81'-83'
B206W8, V09-004-043 } 222-S labs
B206W9, V09-004-044 }
all liners were 100% full of soil, Field reading did not exceed background levels.
1145 - Samples were delivered to 222-S labs per Blue Card #6

Last entry this Date 7-2-09 JJC

Larry Rosane 7-2-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 7-2-09/0940
SAF NO.(S) V09-004	
LOCATION C7168; I-001	LOGBOOK NO./PAGE HNF-N-503-2 pg 13
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 81-83' ☑ft ☐m
BOTTOM OF CASING (bgs) 81' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 83' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane

222-S V09-004-043

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206W8	1 / ~~500mL~~ 125 mL G/P (yr 7-2-09)	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-044

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206W9	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Sand, Silt, moist

FIELD OBSERVATIONS

WEATHER 80°F Sunny Wind 5-10 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers, F.W.S.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 7-2-09 (DATE)

CHECKED BY Barry Orth (PRINT NAME) [signature] (SIGN NAME) 7-2-09 (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:37:39 PM A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-043	PAGE 1 OF 1
COLLECTOR: ROSANE	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7168; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 13	ACTUAL SAMPLE DEPTH: 81'-83'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

40'

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 mL JG 7-2-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206W8	SOIL	7-2-09	0940	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-2-09 / 1145	R Stoelo R Stoelo	7.2.09 1145

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-004-044	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosanne	CONNELLY, MP	373-3981	WIDRIG, DL	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7168; I-001	Direct Push Samples for SX Interim Barrier		V09-004		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
—	HNF-N-503-2-pg13	81'-83'	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations	N/A		N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206W9	SOIL	7-2-09	0940	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	7-2-09/ 1145	RHRistedt RHRistedt	7.2.09 1145
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
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
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-044	PAGE 2 OF 2
COLLECTOR ROSANE	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7168; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. —	FIELD LOGBOOK NO. HNF-N-503-2 pg 13	ACTUAL SAMPLE DEPTH 81'-83'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

C-7168 SX FARMS HNF-N-503-2 pg 14
Date - 7-7-09
Weather - 80°F Sunny Wind 10-15 mph
NCO's - Rosane, Rust
Drillers - Energy Solutions
FWS. - Bill Clark RWP. CO-511 - Rev 1
0700- On site for pre job sign in preparing for sample I-002.
1004- Completed sample I-002 @ 129'-131'
B206X0, V09-004-045 } 222-S labs
B206X1, V09-004-046 }
1402- Completed sample I-003 @ 145'-147'
B206X2, V09-004-047 } 222-S labs
B206X3, V09-004-048 }
all liners were 100% full of soil Field readings did not exceed background levels
1435- Samples were delivered to 222-S labs per blue Card #6.

Last entry this Date 7-7-09

Larry Rosane 7-7-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 7-7-09/1004
SAF NO.(S) V09-004	
LOCATION C7168; I-002	LOGBOOK NO./PAGE HNF-W-503-2 pg 14
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 129-131 ☑ft ☐m
BOTTOM OF CASING (bgs) 129' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 131' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane, Rist

222-S V09-004-045

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X0	1 / ~~500mL~~ 125mL / G/P SJR 7-8-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-046

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X1	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Clay Moist

FIELD OBSERVATIONS

WEATHER 80°F Sunny Wind 5-10 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers FWS.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 7-7-09 (DATE)

CHECKED BY Steve Rist (PRINT NAME) (SIGN NAME) 7-7-09 (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:37:45 PM

ORIGINAL

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-045	PAGE 1 OF 1
COLLECTOR: Rosane Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7168; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 14	ACTUAL SAMPLE DEPTH: 129-131'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

44°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL 7-7-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206X0	SOIL	7-7-09	.004	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Lenny Rosane Lenny Rosane 7-7-09	1435	RtRtd RtSteelc 7.7.09	1435

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-046	PAGE 1 OF 2
COLLECTOR: Rosanne Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7168; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-505-2 pg 14	ACTUAL SAMPLE DEPTH: 129'-131'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206X1	SOIL	7-7-09	1004	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-7-09 1435	Richard RHSteele	7-7-09 1435

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-046	PAGE 2 OF 2
COLLECTOR Rosane Rost	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7168; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-505-2 pg 14	ACTUAL SAMPLE DEPTH 129'-131'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 7-7-09/1402
SAF NO.(S) V09-004	
LOCATION C7168; I-003	LOGBOOK NO./PAGE HNF-W-503-2 pg 14
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 145'-147' ☑ft ☐m
BOTTOM OF CASING (bgs) 145' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 147' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane, Rust

222-S V09-004-047

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X2	1 / ~~500mL~~ 125mL / G/P JJR-7-7-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-048

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X3	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Moist Silt

FIELD OBSERVATIONS

WEATHER 80°F Sunny Wind - 10-15mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers, FWS.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Larry Rosane, Larry 7-7-09	Larry Rosane	7-7-09
CHECKED BY	Stan Rust	[signature]	7-7-09

PRINTED BY TMJOHANS ON 4/22/2009 12:37:52 PM

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-047	PAGE 1 OF 1
COLLECTOR: Rosanne Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7168; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N 503-2 pg 14	ACTUAL SAMPLE DEPTH: 145'-147'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 4°C

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL JAL 7-7-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206X2	SOIL	7-7-09	1402	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-7-09 / 1435	RHSteele RHSteele	7-7-09 1435

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-048	PAGE 1 OF 2
COLLECTOR: Rosane Rost	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7168; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-503-2 pg 14	ACTUAL SAMPLE DEPTH: 145' - 147'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B206X3	SOIL	7-7-09	1402
		↓	↓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Larry Rosane Larry Rosane	7-7-09 1435	RECEIVED BY/STORED IN: RHEGLE RHEGLE	7-7-09 1445
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
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
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-048	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7168; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-W-503-2 pg 14	ACTUAL SAMPLE DEPTH 145'-147'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

C-7170 SX Farms HNF-N-503-2 pg 10
Date - 6-26-09
Weather 80°F Sunny Wind 10-15 mph
NCO - Rosane
Driller - Energy Solutions
FWS - Bill Clark RWP - CO-511 Rev 1
0700 - On site for pre-job sign in preparing for sample I-001
1040 - Completed sample I-001 @ 81.5' - 83.5'
B206X4, V09-004-049 } 222-S labs
B206X5, V09-004-050 }
all liners were 100% full of soil, Field readings were not above back ground levels.
1230 - Samples were delivered to 222-S labs per Blue Card #6

Last entry this Date 6-26-09 SGR

Larry Rosane 6-26-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6-26-09/1040
SAF NO.(S) V09-004	
LOCATION C7170; I-001	LOGBOOK NO./PAGE HNF-N-503-2 pg 10
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 81.5-83.5 ☑ ft ☐ m
BOTTOM OF CASING (bgs) ~~N/A~~ 81.5 ☑ ft ☐ m	BOTTOM OF BOREHOLE (bgs) ~~81.5~~ - 83.5 ☑ ft ☐ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosanne

222-S V09-004-049

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X4	~~1/4 500mL / G/P~~ 125mL 6-26-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-050

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X5	3 / 160g / Liner		None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Sand NO Rock

FIELD OBSERVATIONS

WEATHER 80°F Sunny Wind 10-15 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, FWJ

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Larry Rosanne (PRINT NAME) Larry Rosanne (SIGN NAME) 6-26-09 (DATE)

CHECKED BY [illegible] (PRINT NAME) [illegible] (SIGN NAME) 6/26/09 (DATE)

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Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-049	PAGE 1 OF 1
COLLECTOR: Rosaure	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7170; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY ☐	48 Hours / 15 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-209 10	ACTUAL SAMPLE DEPTH: 81.5-83.5'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 mL SAK 6-26-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B206X4	SOIL	6-26-09	1040

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Roaure - Larry Roaure	6-26-09/1230	RLBlake RLBlake	6-26-09 1230
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
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

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-050	PAGE 1 OF 2
COLLECTOR: Rosane	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7170; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-10-503-2 pg10	ACTUAL SAMPLE DEPTH: 81.5-83.5	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B206X5	SOIL	6-26-09	1040

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	6-26-09 / 1230	RLSteele RLSteele	6.26.09 1230

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-050	PAGE 2 OF 2
COLLECTOR ROSANE	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7170; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. —	FIELD LOGBOOK NO. HNF-N-503-2, pg 10	ACTUAL SAMPLE DEPTH 81.5-83.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

C-7170 SX Farms HNF-N-503-2 pg 11
Date: 6-29-09
Weather - 85°F Sunny Wind 0-5 mph
NCO's - Rosane, Rust, Kauer
Drillers - Energy Solutions
FWS - Bill Clark RwP-CO-511 Rev 1
07:00 - On site Cor Pre Job sign in preparing for sample
I-002
1105 - Completed sample I-002 @ 113'-115'
B206X6, V09-004-051
B206X7, V09-004-052 } 222-S LABS
All Liners were 100% full of Soil, Field Readings
were not above background Levels
1400 - Samples were delivered to 222-S LABS per Blue Card #6
1422 - No Further Entries this Date 6-29-09

Ek
6-29-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6-29-09/1105
SAF NO.(S) V09-004	
LOCATION C7170; I-002	LOGBOOK NO./PAGE HNF-W-503-2 pg 11
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 113-115' ☑ft ☐m
BOTTOM OF CASING (bgs) 113' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 115' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane, Rust

222-S V09-004-051

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X6	1 / ~~500mL~~ 125 ml / G/P SJR 6-29-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-052

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X7	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Dry Sand / Silt

FIELD OBSERVATIONS

WEATHER 85°F Sunny Wind 0-5 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers, F.W.S.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ~~☑ YES~~ SJR 6-29-09 ☑ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 6-29-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) [signature] (SIGN NAME) 6-29-09 (DATE)

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ORIGINAL

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-051	PAGE 1 OF 1
COLLECTOR: Rosane, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7170; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 11	ACTUAL SAMPLE DEPTH: 113'-115'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

34°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 mL [illegible] 6-29-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206X6	SOIL	6-29-09	1105	✓
		↓	↓	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	6-29-09 / 1400	RtSteele RtSteele	6.29.09 1400

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 mL~~ 125 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-052	PAGE 1 OF 2
COLLECTOR: Rosanne Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7170; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 11	ACTUAL SAMPLE DEPTH: 113-115'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206X7	SOIL	6-29-09	1105	✓
		↓	↓	
		↓	↓	
		↓	↓	

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	6-29-09 1400	RA Rust RA Rust	6-29-09 1400

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-052	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7170; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. —	FIELD LOGBOOK NO. HNF-N-503-2 pg 11	ACTUAL SAMPLE DEPTH 113'-115'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

C-7170 SX Farms HWF-N-503-2 pg 12
Date - 6-30-09
Weather 85°F Sunny Wind 10-15 mph
WCO's - Rosane, Rust
Drillers - Energy Solutions
FWS. - Bill Clark RWP. CO-511 Rev1
0700 - On site for pre job sign in preparing for Sample I-003
0842 - Completed sample I-003 @ 135' - 137'
~~Bo~~ B206X8, V09-004-053 } 222-S lab
B206X9 V09-004-054 }
1220 - Completed sample I-004 @ 150' - 152'
B20H47, V09-004-173 } 222-S labs
B20H48 V09-004-174 }
all linners were 100% full of soil, Field readings did not exceed background levels.
1450 - Samples were delivered to 222-S labs per Blue Card #6

Last entry this Date 6-30-09 [illegible]

Larry Rosane 6-30-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	**PAGE** 1 **OF** 1
	DATE/TIME 6-30-09/0842
SAF NO.(S) V09-004	
LOCATION C7170; I-003	**LOGBOOK NO./PAGE** HNF-N-503-2 pg 12
WELL NAME N/A	**WELL ID** N/A **ACTUAL DEPTH** 135'-137' ☒ft ☐m
BOTTOM OF CASING (bgs) 135' ☒ft ☐m	**BOTTOM OF BOREHOLE (bgs)** 137' ☒ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** Rosane, Rust

222-S **V09-004-053**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X8	1 / ~~500mL~~ 125mL / G/P (JAL 6-30-09)	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S **V09-004-054**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206X9	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☒ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Damp Clay (Silt)

FIELD OBSERVATIONS

WEATHER 75° F Sunny Wind 10-15mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers, FWS.

SAMPLES SURVEYED BY RCT ☒ YES ☐ NO

IS A BLUE CARD REQUIRED ☒ YES ☐ NO **BLUE CARD NO** 6

IS SRS PROVIDED AND COMPLETE ☐ YES ☒ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 6-30-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) (SIGN NAME) 6-30-09 (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:38:12 PM A-6004-701 (REV.0)

ORIGINAL

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-053	PAGE 1 OF 1
COLLECTOR: Rosane Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7170; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 12	ACTUAL SAMPLE DEPTH: 135'-137'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 120mL 6-30-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206X8	SOIL	6-30-09	0842	✓
		↓	↓	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane - Larry Rosane	6-30-09 / 1450	RHSteele	6-30-09 1450

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-054	PAGE 1 OF 2
COLLECTOR: Rosanne Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7170; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 12	ACTUAL SAMPLE DEPTH: 135'-137'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

47°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206X9	SOIL	6-30-09	0842	✓
		↓	↓	

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kenny Rosanne Kenny Rosanne 6-30-09	1450	RA Stiebe RA Stiebe 6-30-09	1450

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-054	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7170; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. —	FIELD LOGBOOK NO. RNF-RU-503-2 pg 12	ACTUAL SAMPLE DEPTH 135'-137'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier

PAGE 1 **OF** 1

DATE/TIME 6-30-09/1220

SAF NO.(S) V09-004

LOCATION C7170; I-004

LOGBOOK NO./PAGE HNF-N-503-2 pg 12

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 150'-152' ☑ft ☐m

BOTTOM OF CASING (bgs) 150' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 152' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** Rosanne, Rust

222-S **V09-004-173**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20H47	1 / ~~500mL~~ 125mL / G/P SAF 6-30-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S **V09-004-174**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20H48	3 / 160mL / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

NA

FIELD OBSERVATIONS

WEATHER 83°F Sunny Wind 10-15 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO **BLUE CARD NO** 6

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 6-30-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) (SIGN NAME) 6-30-09 (DATE)

PRINTED BY TMJOHANS ON 5/20/2009 10:40:28 AM A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-173 PAGE 1 OF 1

COLLECTOR: Rosane Rust

SAMPLING LOCATION: C7170; I-004

ICE CHEST NO.: —

SHIPPED TO: 222-S Lab Operations

COMPANY CONTACT: CONNELLY, MP

TELEPHONE NO.: 373-3981

PROJECT COORDINATOR: WIDRIG, DL

PRICE CODE: 2B

DATA TURNAROUND: 48 Hours / 15 Days

AIR QUALITY: ☐

PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier

SAF NO.: V09-004

FIELD LOGBOOK NO.: HNF-N-363-2 pg 12

ACTUAL SAMPLE DEPTH: 150'-152'

COA: 301483ES10

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

OFFSITE PROPERTY NO.: N/A

BILL OF LADING/AIR BILL NO.: N/A

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20H47	SOIL	6-30-09	1220	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	6-30-09/ 1450	RKSteele RKSteele	6-30-09 1450

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

LABORATORY SECTION — RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION — DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-174 PAGE 1 OF 2

COLLECTOR: Rosane, Rust

SAMPLING LOCATION: C7170; I-004

ICE CHEST NO.:

SHIPPED TO: 222-S Lab Operations

COMPANY CONTACT: CONNELLY, MP

TELEPHONE NO.: 373-3981

PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier

FIELD LOGBOOK NO.: HNF-10-503-2 pg 12

ACTUAL SAMPLE DEPTH: 150' - 152'

OFFSITE PROPERTY NO.: N/A

PROJECT COORDINATOR: WIDRIG, DL

SAF NO.: V09-004

COA: 301483ES10

BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 8P

AIR QUALITY: ☐

DATA TURNAROUND: 75 Days / 75 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
820H48	SOIL	6-30-09	1220

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	6-30-09 1450	RHSteele RHSteele	6-30-09 1450

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION — RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION — DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-174 **PAGE 2 OF 2**

COLLECTOR Rosalie Rust	**COMPANY CONTACT** CONNELLY, MP	**TELEPHONE NO.** 373-3981	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7170; I-004	**PROJECT DESIGNATION** Direct Push Samples for SX Interim Barrier		**SAF NO.** V09-004	**AIR QUALITY** ☐	**75 Days / 75 Days**
ICE CHEST NO. —	**FIELD LOGBOOK NO.** HNF-N-503 Pg 12	**ACTUAL SAMPLE DEPTH** 150-152'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

Direct Push for SX Interim Barrier HNF-N-503-2 pg 1

Date: 5-20-09 NCO's, Kauer, Rust, Rosane

Weather - 54°F 0-5 mph wind Hpt's - Young, Widdis

partly cloudy Drillers - Energy Solutions

FWS - Bill Clark

07:30 - on site sign-in Pre SOB

0905 - Sample Taken I001 well-7172 V09-004-055 B20640

V09-004-056 B20641 Depth 46' to 48' 3 Full Liners

1450 - Sample Taken I-002 well-7172, V09-004-057, B20642

V09-004-058 B20643 Depth 75.5 to 77.5 3 Full Liners

1545 - Samples I-001 & I-002 delivered to 222-S labs.

Last Entry this Date

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 5-20-09/0905
SAF NO.(S) V09-004	
LOCATION C7172; I-001	LOGBOOK NO./PAGE HNF-N-503-2 PG 1
WELL NAME C7172	WELL ID C7172 ACTUAL DEPTH 46' to 48' ☑ft ☐m
BOTTOM OF CASING (bgs) 46' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 48' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Kauer, Rust

222-S **V09-004-055**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206Y0	1 / ~~500mL~~ 250mL / G/P EK 5-20-09	027994	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S **V09-004-056**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206Y1	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Light Tan to Dark Brown Sand & Dirt

FIELD OBSERVATIONS

WEATHER 54°F 0-5 mph wind partly cloudy

FIELD COMMENTS 3 full Linners / 1/2 full 250mL Linner

SUPPORT PERSONNEL Drillers - Enery Solutions, FWS - Bill Clark, HPT - Young, Widdis

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Ed Kauer	[signature]	5-20-09
CHECKED BY	Larry Rosane	Larry Rosane	5-20-09

PRINTED BY TMJOHANS ON 4/22/2009 12:38:18 PM A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-055	PAGE 1 OF 1
COLLECTOR: Kauer, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7172; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-303 2 (PS 1)	ACTUAL SAMPLE DEPTH: 46' to 48'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: Lot #

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 027997

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206Y0	SOIL	5-20-09	0905	✓

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer / [signature]	5-20-09 1545	T McCollock / [signature]	5-20-09 1545

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-056 PAGE 1 OF 2

COLLECTOR: Kauer, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7172; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 1	ACTUAL SAMPLE DEPTH: 46' to 48'	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 8P
AIR QUALITY: ☐
DATA TURNAROUND: 75 Days / 75 Days
METHOD OF SHIPMENT: GOVERNMENT VEHICLE

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206Y1	SOIL	5-20-09	0905	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer / [signature]	5-20-09 1545	Tim Glock [signature]	5-20-09 1545

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-056	PAGE 2 OF 2
COLLECTOR KAUER, RUST	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7172; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. RS1 HNF-N-503-2	ACTUAL SAMPLE DEPTH 46' to 48'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 5-20-09/1460
SAF NO.(S) V09-004	
LOCATION C7172; I-002	LOGBOOK NO./PAGE HNF-N-503-2 Pg 1
WELL NAME C7172	WELL ID C7172 ACTUAL DEPTH 75.5 to 77.5 ☑ ft ☐ m
BOTTOM OF CASING (bgs) 75.5 ☑ ft ☐ m	BOTTOM OF BOREHOLE (bgs) 77.5 ☑ ft ☐ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR KAUER, RUST, ROSANE

222-S V09-004-057

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206Y2	1 / ~~500mL~~ 250mL / G/P	027994	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-058

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206Y3	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Slimy clay NO ODOR, NO Rocks DARK Gray

FIELD OBSERVATIONS

WEATHER 68°F 5-10 mph wind partly Cloudy

FIELD COMMENTS

N/A

SUPPORT PERSONNEL Drillers Energy Solutions, FWS-Bill Clark, HPT-Young, Widdis

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Ed Kauer	Ed Kauer	5-20-09
CHECKED BY	Larry Rosane	Larry Rosane	5-20-09

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ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-057	PAGE 1 OF 1
COLLECTOR: KAUER, RUST, ROSANE	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7172; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 PS 1	ACTUAL SAMPLE DEPTH: 75.5 to 77.5	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 250 mL 5.2 gm
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B206Y2	SOIL	5-20-09	1450

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer/Rust Rosane	5-20-09 1545	Tim Collach	5-20-09 1545

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-058	PAGE 1 OF 2
COLLECTOR KAUER, Rust, Rosane	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7172; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-2 891	ACTUAL SAMPLE DEPTH 75.5 to 77.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206Y3	SOIL	5-20-09	1450	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM / DATE/TIME	RECEIVED BY/STORED IN / DATE/TIME	
Ed KAUER / Edward Kauer 5-20-09 1545	TM Gilbert 5-20-09 1545	
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	
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
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-058	PAGE 2 OF 2
COLLECTOR Kauer, Rust, Rosane.	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7172; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. Pg 1 HNF-N-503-2	ACTUAL SAMPLE DEPTH 75.5 to 77.5	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

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(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

C-7172 SX Farm HNF-N-503-2 pg 2
Date: 5-26-09
Weather 60-80 °F Sunny Wind 10-15 mph
NCO's - Rosane, Rauer, Rust
Drillers - Energy Solutions
FWS - Bill Clark
HPT's - Young, Widdis RWP - CO-511 Rev 1
0700 - On site pre-job sign in preparing for I-003
0945 - Sample taken for I-003 B206Y4, V09-004-059 } 222-S labs
Depth @ 97.5'-99.5' B206Y5 V09-004-060 }
All three liners were 100% full of soil, liners B&C stuck in sample body removed soil and placed into 250 ml poly bottles
1455 - Sample taken for I-004 B20H51, V09-004-177 } 222-S labs
Depth @ 126'-128' B20H52, V09-004-178 }
All three liners were 100% full
1545 - Samples were delivered to 222-S labs, Field reading were not above background sample were transported per Blue Card # 6

Last entry this Date
5-26-09

Larry Rosane 5-26-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier

PAGE 1 **OF** 1

DATE/TIME 5-26-09/0945

SAF NO.(S) V09-004

LOCATION C7172; I-003

LOGBOOK NO./PAGE HNF-N-503-2 pg 2

WELL NAME C7172

WELL ID C-7172

ACTUAL DEPTH 97.5 to 99.5 ☑ ft ☐ m

BOTTOM OF CASING (bgs) 97.5 ☑ ft ☐ m

BOTTOM OF BOREHOLE (bgs) 99.5 ☑ ft ☐ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** KAUER, ROSANE

222-S V09-004-059

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206Y4	1 / ~~500mL~~ 125mL / G/P EEK 5-26-09		Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-060

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B206Y5	3 / 160g / Liner		None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

NO ODOR, Brown clay to Light Sand

FIELD OBSERVATIONS

WEATHER 69°F 0-5 mph wind partly cloudy

FIELD COMMENTS Liners B & C stuck in sample Body Removered sample (soil) out of Liners place into 250mL poly Bottles.

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO **BLUE CARD NO** #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Ed Kauer (PRINT NAME) [signature] (SIGN NAME) 5-26-09 (DATE)

CHECKED BY (PRINT NAME) (SIGN NAME) (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:38:32 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-059	PAGE 1 OF 1
COLLECTOR: KAUER, ROSANE	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7172; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2	ACTUAL SAMPLE DEPTH: 98.5' to 99.5	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B206Y4	SOIL	5-26-09	0945	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
R Kauer / [signature]	5-26-09 1545	T Gollock / [signature]	5-26-09 1545

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-060	PAGE 1 OF 2
COLLECTOR: KAUER, ROSANNE	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7172; I-C03	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 2	ACTUAL SAMPLE DEPTH: 97.5 to 99.5	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None	None			
TYPE OF CONTAINER	Liner	250mL			
NO. OF CONTAINER(S)	1	2			
VOLUME	160g	160g			
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	See Item (1) in Special Instructions			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B206Y5	SOIL	5-26-09	0545	✓	✓								

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: R.L. Kauer / [signature]	DATE/TIME: 5-26-09 1545	RECEIVED BY/STORED IN: T.L. Pollock [signature]	DATE/TIME: 5-26-09 1545
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
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: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-060	PAGE 2 OF 2
COLLECTOR KANZR, ROSANNE	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7172; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. pg 2 HNF-N-503-2	ACTUAL SAMPLE DEPTH 97.5 to 99.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-518(01/05)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	**PAGE** 1 **OF** 1
	DATE/TIME 5-26-09/1455
SAF NO.(S) V09-004	
LOCATION C7172; I-006/4	**LOGBOOK NO./PAGE** HNF-N-503-2 pg 2
WELL NAME	**WELL ID** N/A **ACTUAL DEPTH** 126-128" ☑ft ☐m
BOTTOM OF CASING (bgs) ☐ft ☐m	**BOTTOM OF BOREHOLE (bgs)** N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** Rosane, Rust

222-S **V09-004-177**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20H51	1 / ~~500mL~~ 125 mL / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S **V09-004-178**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20H52	3 / 160mL / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

3 liners 100% full wet sand & clay

FIELD OBSERVATIONS

WEATHER 80°F Sunny Wind 5-10 mph

FIELD COMMENTS

SUPPORT PERSONNEL

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO **BLUE CARD NO** 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 5-26-09 (DATE)

CHECKED BY (PRINT NAME) (SIGN NAME) (DATE)

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Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-177 PAGE 1 OF 1

COLLECTOR: Rosane Rost

SAMPLING LOCATION: C7172; I-006

ICE CHEST NO.:

SHIPPED TO: 222-S Lab Operations

COMPANY CONTACT: CONNELLY, MP

TELEPHONE NO.: 373-3981

PROJECT COORDINATOR: WIDRIG, DL

PRICE CODE: 2B

DATA TURNAROUND: 48 Hours / 15 Days

AIR QUALITY: ☐

PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier

SAF NO.: V09-004

FIELD LOGBOOK NO.: HNF-N-503-2 pg 2

ACTUAL SAMPLE DEPTH: 126 - 128'

COA: 301483ES10

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

OFFSITE PROPERTY NO.: N/A

BILL OF LADING/AIR BILL NO.: N/A

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE:

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 mL DJR 5-26-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20H51	SOIL	5-26-09	1455

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	5-26-09 1545	J. Tutellock	5-26-09 1545

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

LABORATORY SECTION — RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION — DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-178 PAGE 1 OF 2

COLLECTOR: Rosane Rust

SAMPLING LOCATION: C7172; I-006

ICE CHEST NO.:

SHIPPED TO: 222-S Lab Operations

COMPANY CONTACT: CONNELLY, MP

TELEPHONE NO.: 373-3981

PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier

FIELD LOGBOOK NO.: HNF-N-503-2 pg 2

ACTUAL SAMPLE DEPTH: 126-128'

OFFSITE PROPERTY NO.: N/A

PROJECT COORDINATOR: WIDRIG, DL

SAF NO.: V09-004

COA: 301483ES10

BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 8P

AIR QUALITY: ☐

DATA TURNAROUND: 75 Days / 75 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20H52	SOIL	5-26-09	1455

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	5-26-09/1545	TMCollock TMCollock	5-26-09 1545
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-178 **PAGE 2 OF 2**

COLLECTOR Rosanne Rust	**COMPANY CONTACT** CONNELLY, MP	**TELEPHONE NO.** 373-3981	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7172; I-006	**PROJECT DESIGNATION** Direct Push Samples for SX Interim Barrier		**SAF NO.** V09-004
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-503 Rev2	**ACTUAL SAMPLE DEPTH** 126-128'	**COA** 301483ES10
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A

PRICE CODE 8P

AIR QUALITY ☐

DATA TURNAROUND 75 Days / 75 Days

METHOD OF SHIPMENT GOVERNMENT VEHICLE

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

3

C-7178 SX Farm HNF-N-503-2 pg.3
Date: 6-2-09
Weather 80°F Sunny Wind: 15-20 mph
NCO's - Rosane, Rust
Drillers - Energy Solutions
F.W.S. - Bill Clark RWP. CO-511 Rev. 1
0700 - On site pre job sign in preparing sample on new borehole C-7178 three intervals
0956 - Sample taken for I-001 Depth @ 89'-91'
B20708, V09-004-073 } 222-S labs
B20709, V09-004-074 }
All three liners were 100% full of soil
1045 - Samples were delivered to 222-S labs, Field readings were not above background samples were transported per Blue Card #6

Last entry this Date 6-2-09 SJR

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6-2-09/0956
SAF NO.(S) V09-004	
LOCATION C7178; I-001	LOGBOOK NO./PAGE HNF-N-503-2 pg 3
WELL NAME C-7178	WELL ID N/A ACTUAL DEPTH 89-91' ☑ft ☐m
BOTTOM OF CASING (bgs) ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane, Rust

222-S V09-004-073

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20708	1 / ~~500mL~~ 125 / G/P 6-2-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-074

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20709	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Dry sand (Brown & Gray some clay)

FIELD OBSERVATIONS

WEATHER 80°F Sunny Wind 15-20 mph

FIELD COMMENTS —

SUPPORT PERSONNEL RCT Drillers

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 6-2-09 (DATE)

CHECKED BY LD Spicer (PRINT NAME) CHPRC (SIGN NAME) Lynn D Spicer (DATE) JUN 03 2009

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Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-073	PAGE 1 OF 1
COLLECTOR: Rosanne Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 28	DATA TURNAROUND
SAMPLING LOCATION: C7178; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HWF-N-503-2 pg 3	ACTUAL SAMPLE DEPTH: 89'-91'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	56°											
TYPE OF CONTAINER	G/P												
NO. OF CONTAINER(S)	1												
VOLUME	~~500~~mL 125 mL Eu & ~~[illegible]~~												
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS												

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B20708	SOIL	6-2-09	0956	✓									

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	6-2-09 1045	RJ Stelter RJ Stelter	6.2.09 1045

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-074	PAGE 1 OF 2
COLLECTOR: Rashane Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7178; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 p43	ACTUAL SAMPLE DEPTH: 89'-91'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20709	SOIL	6-2-09	0956	✓

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	6-2-09/1645	[illegible]	6-2-09 1645
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
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: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-074	PAGE 2 OF 2
COLLECTOR Rosane Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7178; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. —	FIELD LOGBOOK NO. HNF-N-503-2 pg 3	ACTUAL SAMPLE DEPTH 89'-91'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

4

C7178 SX FARMS HNF-N-503-2 pg8
Date: 6-3-09 NCO'S - KAUER, White
Weather - 70°F HPT's - YOUNG, Widdis
5-10 mph wind FWS - Bill Clark
SUNNY Drillers - Energy Solutions
07:30 - on-site sign-in Pre-Job
09:30 - Drillers snapped casting NO Sample
Thker "Resume Drilling in Day or
Two NO Further Entries This Date
6-3-09

6-3-09

5

27178 SX FARMS HNF-N-503-2 pg 8
Date - 6-9-09 NCO'S - KAUER, ROSANE
weather 78°F Hpts - YOUNG
0-5mph wind SUNNY FWS - Bill Clark
245 - ON site Pre Job, sign in
345 - Completed I-002 @ 127' to 129'
B20710 V09-004-075 } ~~2225 LABS~~
B20711 V09-004-076
ALL 3 Liners at 100% full
430 - Delivered Samples to 2225 LABS.
515 - No Further Entries this Date 6-9-09

6-9-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6/3/09 1345
SAF NO.(S) V09-004	
LOCATION C7178; I-002	LOGBOOK NO./PAGE HNF-N-503-2 P95
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 127' to 129' ☑ft ☐m
BOTTOM OF CASING (bgs) 127' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 129' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR KAUER, ~~Kate~~ Rosanne 6-9-09

222-S V09-004-075

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B2071D	1 / ~~500~~ 125mL / G/P 6-2-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-076

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20711	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

moist DRY

FIELD OBSERVATIONS

WEATHER 78°F 5-10 mph wind SUNNY

FIELD COMMENTS

N/A

SUPPORT PERSONNEL Energy Solutions Drillers Hpt's Young, Widdis

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY KAUER (PRINT NAME) [signature] (SIGN NAME) 6-9-09 (DATE)

CHECKED BY LD Spicer (PRINT NAME) [signature] (SIGN NAME) JUN 10 2009 (DATE)

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Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-075	PAGE 1 OF 1
COLLECTOR: KAUER, ~~[illegible]~~ ROSANE 6-9-09	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7178; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-503-2 Pg 4	ACTUAL SAMPLE DEPTH: 127' to 129'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL SL 6-2-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20710	SOIL	06-09-09	1345
SQ V000710			

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed KAUER	6-9-09 1430	R. [illegible] RHS/[illegible]	6-9-09 1430

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-076	PAGE 1 OF 2
COLLECTOR: Kauer, Ed; White; Rosone	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7178; I-002 (6-09)	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-503-2 PG 5	ACTUAL SAMPLE DEPTH: 127' to 129'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20711	SOIL	06-09-09	1345	✓
S09V000711				
712				
↓ 713				

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Ed Kauer	6-9-09 1430	RECEIVED BY/STORED IN: [illegible]	6-9-09 1430
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/05)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-076	PAGE 2 OF 2
COLLECTOR KAYER, ~~[illegible]~~ ROSAME	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7178; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-503-2 pg 5	ACTUAL SAMPLE DEPTH 123' to 129'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6-10-09/1100
SAF NO.(S) V09-004	
LOCATION C7178; I-003	LOGBOOK NO./PAGE HNF-N-503-2 pg 6
WELL NAME C-7178	WELL ID N/A ACTUAL DEPTH 151'-153' ☑ft ☐m
BOTTOM OF CASING (bgs) 151' ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) 153' ☐ft ☐m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane Rust	

222-S V09-004-077

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20712	1 / ~~500~~ 125 mL / G/P Exp 6-2-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-078

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20713	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Moist Clay

FIELD OBSERVATIONS

N/A

WEATHER 75°F Partly Cloudy Wind 10-15 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT Drillers FWS.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Larry Rosane	Larry Rosane	6-10-09
CHECKED BY	D.G. Orth	[signature]	6/15/09

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A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-077	PAGE 1 OF 1
COLLECTOR: Rosane Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7178; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-W-503-2 pg 6	ACTUAL SAMPLE DEPTH: 151' - 153'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

49°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500~~ mL 125 mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20712	SOIL	6-10-09	1100

NA

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane 6-10-09	1400	RHSteele RHSteele	6-10-09 1400

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 mL~~ bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-078	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7178; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-503-2 pg 6	ACTUAL SAMPLE DEPTH 151'-153'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegitation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993) NA	PRESERVATION	None
		TYPE OF CONTAINER	Liner
		NO. OF CONTAINER(S)	3
		VOLUME	160g
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20713	SOIL	6-10-09	1100
	NA		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane 6-10-09	1400	R Stteck RSteck	6-10-09 1400
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
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

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-078	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7178; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-503-2 pg 6	ACTUAL SAMPLE DEPTH 151' - 153'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

NA

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6-18-09/1327
SAF NO.(S) V09-004	
LOCATION C7180; I-001	LOGBOOK NO./PAGE HNF-N-503-2 pg 7
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH ~~86'~~ ~~88~~ ☑ ft ☐ m
BOTTOM OF CASING (bgs) ~~86'~~ 93' ☑ ft ☐ m	BOTTOM OF BOREHOLE (bgs) ~~88'~~ 95 ☑ ft ☐ m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2	COLLECTOR Rosane Rust Kauer

222-S V09-004-079

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20714	1 / 500mL / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-080

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20715	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Sand moisti to Dry

FIELD OBSERVATIONS

WEATHER 85°F 10-15 mph wind Sunny

FIELD COMMENTS

N/A

SUPPORT PERSONNEL Hpt Drillers FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Ed Kauer	Ed Kauer	6-18-09
CHECKED BY	Larry Rosane	Larry Rosane	6-18-09

PRINTED BY TMJOHANS ON 4/22/2009 12:39:38 PM A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-079	PAGE 1 OF 1
COLLECTOR: Rosanne Rust Kauer	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7180; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 7	ACTUAL SAMPLE DEPTH: ~~86' to 88'~~ 93 - 95	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20714	SOIL	6-18-09	1327

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer	6-18-09 1430	[illegible]	6.18.09 1430

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-080	PAGE 1 OF 2
COLLECTOR: Rosanne Rust Kauer	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7180; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.: ~~Rosanne Rust Kauer~~	FIELD LOGBOOK NO.: HNF-N-503-2 pg 7	ACTUAL SAMPLE DEPTH: ~~86' to 88'~~ 93-95'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20715	SOIL	6-16-09	1327	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM: Ed Kauer, DATE/TIME: 6-18-09 1430	RECEIVED BY/STORED IN: RASTEELE, DATE/TIME: 6-18-09 1430
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
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

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/05)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-080	PAGE 2 OF 2
COLLECTOR Rosanne Rust Kauer	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7180; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. —	FIELD LOGBOOK NO. HNF-N-503-2 pg 7	ACTUAL SAMPLE DEPTH 93'-95'	COA 301483E510	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

[illegible] HNF-N-503-2 pg 8
Date - 6-19-09

Weather 85°F Sunny Wind 10-15 mph
NCO - Rosane
Drillers - Energy Solutions
FWS - Bill Clark RWP - CO-511 Rev 1
0700 - On site for pre job sign in preparing for sample I-002
0930 - Completed sample I-002 @ 104'-106'
B20716, V09-004-081 } ~~222-S labs~~
B20717, V09-004-082 }
1410 - Completed sample I-003 @ 127'-129'
B20718 } ~~222-S labs~~
B20719 }
all liners were 100% full of soil, Field readings were 150 cpm above background levels
1445 - Samples were delivered to 222-S labs per Blue Card #6

Sent return this Date JR 6-19-09

Larry Rosane 6-19-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6-19-09/0930
SAF NO.(S) V09-004	
LOCATION C7180; I-002	LOGBOOK NO./PAGE HNF-N-503-2 pg 8
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 104'-106' ☑ft ☐m
BOTTOM OF CASING (bgs) 104' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 106' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane

222-S V09-004-081

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20716	1 / ~~500ml~~ 125 ml / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-082

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20717	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

~~CONTAINER/DR~~UM/TOTE/BOX

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.)]

Sand & Clay Brown

FIELD OBSERVATIONS

WEATHER 80°F Sunny Wind 0-5 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT Drillers, F.W.S.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Larry Rosane	Larry Rosane	6-19-09
CHECKED BY	B.G. Orth	B.G. Orth	6/19/09

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A-6004-701 (REV.0)

ORIGINAL

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-081	PAGE 1 OF 1
COLLECTOR: Rosane	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7180; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 8	ACTUAL SAMPLE DEPTH: 104'-106'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 340

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 mL [illegible]
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20716	SOIL	6-19-09	0930	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	6-19-09/1445	TM Collock [signature]	6-19-09 1445

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500~~ 125 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. [initials] 6-19-09

(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-082	PAGE 1 OF 2
COLLECTOR: Rosanne	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7180; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 8	ACTUAL SAMPLE DEPTH: ~~105~~ 104' - 106'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 34°

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20717	SOIL	6-19-09	0930	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Larry Rosanne Larry Rosanne	DATE/TIME: 6-19-09 1445	RECEIVED BY/STORED IN: TM Collock	DATE/TIME: 6-19-09 1445
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
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: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-082	PAGE 2 OF 2
COLLECTOR ROSANE	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7180; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-2 pg 8	ACTUAL SAMPLE DEPTH 104' - 106'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 6-19-09/1410
SAF NO.(S) V09-004	
LOCATION C7180; I-003	LOGBOOK NO./PAGE HNF-N-503-2 pg 8
WELL NAME N/A	WELL ID N/A / ACTUAL DEPTH 127'-129' ☐ft ☐m
BOTTOM OF CASING (bgs) 127' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 129' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosanne

222-S V09-004-083

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20718	1 / ~~500mL~~ 125 / G/P sgc 6-19-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-084

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20719	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Clay, Brown

FIELD OBSERVATIONS

WEATHER 80°F Sunny, Wind 10-15 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 6-19-09 (DATE)

CHECKED BY Barry Ortth (PRINT NAME) (SIGN NAME) 6/19/09 (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:39:51 PM A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-083	PAGE 1 OF 1
COLLECTOR: Rosane	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7180; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.: —	FIELD LOGBOOK NO.: HNF-N-503-2 pg 8	ACTUAL SAMPLE DEPTH: 127'-129'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 75

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20718	SOIL	6-19-09	1410	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Larry Rosane Larry Rosane	6-19-09/1445	T M Gilbert	6-19-09 1445
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
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

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-084	PAGE 1 OF 2
COLLECTOR Rosane	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7180; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. —	FIELD LOGBOOK NO. HNF-N-303-2 pg 8	ACTUAL SAMPLE DEPTH 127'-129'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
83

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20719	SOIL	6-19-09	1410

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane	Larry Rosane 6-19-09/ 1445	TM Colloch	6-19-09 1445
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
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
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-084	PAGE 2 OF 2
COLLECTOR Rosalie	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7180; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO. _____	FIELD LOGBOOK NO. HNF-IV-503-2 pg 8	ACTUAL SAMPLE DEPTH 127'-129'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

C-7180 SX Farms HNF-N-503-2 pg 9

Date - 6-22-09

Weather 60°F Partly Cloudy, Rain Wind 10-15 mph

NCO's - Rosanne, Rust

Drillers - Energy Solutions

F.W.S. - Bill Clark RWP-CO-511 Rev 1

0700 - On site for pre job sign in preparing for sample I-004
Due to weather (Rain high winds) work was stopped

1310 - Resumed work Completed sample I-004 @ 152'-154'
B20H67, V09-004-193 } ~~222-S labs~~
B20H68, V09-004-194 }
all liners were 100% full of soil, field readings were below background levels.

1430 - Samples were delivered to 222-S labs per Blue Card #6

Last entry this Date 6-22-09 JR

Larry Rosanne 6-22-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier

PAGE 1 **OF** 1

DATE/TIME 6-22-09/1310

SAF NO.(S) V09-004

LOCATION C7180; I-004

LOGBOOK NO./PAGE HNF-N-503-2 pg 9

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 151'-154' ☑ft ☐m

BOTTOM OF CASING (bgs) 152' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 154' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 **TOTAL NUMBER OF CHAINS** 2 **COLLECTOR** Rosane, Rust

222-S **V09-004-193**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20H67	1 / ~~500mL~~ 125mL / G/P 9/A 6-22-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S **V09-004-194**

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20H68	3 / 160mL / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Wet Clay

FIELD OBSERVATIONS

WEATHER 60°F Partly Cloudy Rain Wind 10-15 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, EWS, Drillers

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO **BLUE CARD NO** 6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 6-22-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) (SIGN NAME) 6-22-09 (DATE)

PRINTED BY TMJOHANS ON 5/20/2009 10:41:15 AM A-6004-701 (REV.0)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-193 PAGE 1 OF 1

COLLECTOR Rosanne Rust	**COMPANY CONTACT** CONNELLY, MP	**TELEPHONE NO.** 373-3981	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7180; I-004	**PROJECT DESIGNATION** Direct Push Samples for SX Interim Barrier		**SAF NO.** V09-004
ICE CHEST NO. —	**FIELD LOGBOOK NO.** HNF-N-503-2 pg 9	**ACTUAL SAMPLE DEPTH** 152'-154'	**COA** 301483ES10
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A

PRICE CODE 2B **DATA TURNAROUND** 48 Hours / 15 Days

AIR QUALITY ☐

METHOD OF SHIPMENT GOVERNMENT VEHICLE

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL
SAMPLE ANALYSIS	3H-6-22-09 SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20H67	SOIL	6-22-09	1310	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Jerry Rowe Jerry Rowe	1430	RKRstelle RKRstelle	6-22-09 1430
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
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

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-194 PAGE 1 OF 2

COLLECTOR: Rosanne Rust

SAMPLING LOCATION: C7180; I-004

ICE CHEST NO.: —

SHIPPED TO: 222-S Lab Operations

COMPANY CONTACT: CONNELLY, MP

TELEPHONE NO.: 373-3981

PROJECT COORDINATOR: WIDRIG, DL

PRICE CODE: 8P

DATA TURNAROUND: 75 Days / 75 Days

AIR QUALITY: ☐

PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier

SAF NO.: V09-004

FIELD LOGBOOK NO.: HNF-N-503-2 pg 9

ACTUAL SAMPLE DEPTH: 152'- 154'

COA: 301483ES10

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

OFFSITE PROPERTY NO.: N/A

BILL OF LADING/AIR BILL NO.: N/A

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20H68	SOIL	6-22-09	1310	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	6-22-09 1430	RHHeck RHHeck	6.22.09 1430

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION — RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION — DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-194 PAGE 2 OF 2

COLLECTOR Rosane, Rost	**COMPANY CONTACT** CONNELLY, MP	**TELEPHONE NO.** 373-3981	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7180; I-004	**PROJECT DESIGNATION** Direct Push Samples for SX Interim Barrier		**SAF NO.** V09-004
ICE CHEST NO. —	**FIELD LOGBOOK NO.** HNF-N-503-2 pg 9	**ACTUAL SAMPLE DEPTH** 152'-154'	**COA** 301483ES10
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A

PRICE CODE 8P

AIR QUALITY ☐

DATA TURNAROUND 75 Days / 75 Days

METHOD OF SHIPMENT GOVERNMENT VEHICLE

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

17

C-7184 SX Farm HNF-W-503-2 pg 17

Date: 8-3-09

Weather 94°F 0-5 mph Wind Sunny

NCO - ROSANE, Karen Rust

Driller - Energy Solutions

FWS. Bill Clark RWP. CO-511 Rev 2

0945 - Completed sample I-001 @ 83'-85'

B20726, V09-004-091 } Sample NOT TAKEN
B20727, V09-004-092 } 222-S

No soil in shoe linners A - 100%, B - 50%, C - No Soil

1200 - Completed sample I-002 @ 104'-106'

B20728, V09-004-093

B20729, V09-004-094

all linners were 100% & shoe full of soil, Field reading did not exceed background levels.

1400: Samples were delivered to 222-S lab per Blue Card #6

Last entry this Date SJR 8-3-09

[illegible] 8-3-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier — PAGE 1 OF 1

DATE/TIME 8-3-09 0945

SAF NO.(S) V09-004

LOCATION C7184; I-001 — LOGBOOK NO./PAGE HNF-N-503-2 pg 17

WELL NAME N/A — WELL ID N/A — ACTUAL DEPTH 83' to 85' ☑ft ☐m

BOTTOM OF CASING (bgs) 83' ☑ft ☐m — BOTTOM OF BOREHOLE (bgs) 85' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 — TOTAL NUMBER OF CHAINS 2 — COLLECTOR Kauer, Rust, Rosane

222-S — V09-004-091

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
~~B20726~~	~~1 / 500mL / G/P~~	None	~~Cool-4C~~	~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~ NA BK 8-3-09

222-S — V09-004-092

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20727	2 / 160g / Liner BK 8-3-09	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Granular moist sand

FIELD OBSERVATIONS

WEATHER

FIELD COMMENTS 94°F 0-5 mph wind Sunny
NO Soil in Shoe Liner A - 100% Full
B - 50% Full
C - NO Soil

SUPPORT PERSONNEL Hpt - Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO — BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Ed Kauer (PRINT NAME) — Edward Kauer (SIGN NAME) — 8-3-09 (DATE)

CHECKED BY Larry Rosane (PRINT NAME) — Larry Rosane (SIGN NAME) — 8-3-09 (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:40:18 PM — A-6004-701 (REV.0)

RPP-43548, Rev. 0

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-092 PAGE 1 OF 2

OLLECTOR: KAUSL, RUSL, ROSAVE	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
AMPLING LOCATION: 7184, I 001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09 004
CE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503.2 PS 17	ACTUAL SAMPLE DEPTH: 83' to 85'	COA: 301483ES10
HIPPED TO: 22-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 8P

AIR QUALITY: 17

DATA TURNAROUND: 75 Days / 75 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

MATRIX*: =Air, =Drum, =Liquids, =Drum, =Solids, =Liquid, =Oil, =Soil, =Sediment, =Tissue, =Vegetation, =Water, =Wipe, =Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	2 8-3-09
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
20727	SOIL	8-3-09	0945	✓

HAIN OF POSSESSION / SIGN/ PRINT NAMES

ELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	8-3-09 1400	[signature]	8-3-09 1400

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A 6003-61R(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-092	PAGE 2 OF 2
COLLECTOR Gauer, Rust, Rosane	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7184; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. Pg 17 14NF-N-503-2	ACTUAL SAMPLE DEPTH 83' to 85'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta}
RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-3-09 12:00
SAF NO.(S) V09-004	
LOCATION C7184; I-002	LOGBOOK NO./PAGE
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 104' to 106' ☑ft ☐m
BOTTOM OF CASING (bgs) 104' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 106 ☑ft ☐m
SAMPLES COLLECTED	
TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2	COLLECTOR Kauer, Rust, Rosane

222-S V09-004-093

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20728	1 / ~~500mL~~ 125mL / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-094

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20729	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Slit mosit some Rock some SAND

FIELD OBSERVATIONS

WEATHER 100°F 0-5 mph wind SUNNY

FIELD COMMENTS 100% Full ALL Liners (A,B,C)

SUPPORT PERSONNEL Hpt, Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Ed Kauer	Ed Kauer	8-3-09
CHECKED BY	Larry Rosane	Larry Rosane	8-3-09

PRINTED BY TMJOHANS ON 4/22/2009 12:40:25 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-093	PAGE 1 OF 1
COLLECTOR: Baker, Rust, Resanor	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7184, 1-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 (P317)	ACTUAL SAMPLE DEPTH: 104 to 106	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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 may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL (125)
SAMPLE ANALYSIS	(SEE ITEM (1) IN SPECIAL INSTRUCTIONS)

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20728	SOIL	8-3-09	1200	✓

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: E. Baker / Schneider	8-3-09 1400	RECEIVED BY/STORED IN: Nitrat. / Steele	8-3-09 1400
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
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

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-094 PAGE 1 OF 2

COLLECTOR: Kause, Rust, Resane	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7184; I 002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 PS17	ACTUAL SAMPLE DEPTH: 104' to 106'	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 8P

AIR QUALITY: ☐

DATA TURNAROUND: 75 Days / 75 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

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 may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20729	SOIL	8-3-09	12:00

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E. Kause / [signature]	8-3-09	[signature] RJS/GC/C	8-3-09 1400

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-094	PAGE 2 OF 2
COLLECTOR Kauer, Rust, Rosanc	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7184: I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. RST HNF-N-503-2	ACTUAL SAMPLE DEPTH 104' to 106'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta}
RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

18

C-7184 SX Farm HNF-N-503-2 pg 18
Date: 8-4-09
Weather 95°F Sunny Wind 0-5 mph
NCO's Rosawe, Kauer, Lost
Drillers - Energy Solutions
F.W.S. Bill Clark RWP CO-511 Rev 2
1000- On site for pre job sign-in preparing for sample
1050- Completed I-003 @ 128.5'-130.5'
B20730, V09-004-095
B20731, V09-004-096
all liners were 100% full of soil, Field readings did not exceed background levels
1500- Sample were delivered to 222-S labs per Blue Card #6

Last entry this Date 8-4-09 JK

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-4-09 1050
SAF NO.(S) V09-004	
LOCATION C7184; I-003	LOGBOOK NO./PAGE HNF-N-503-2 Pg 18
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 128.5 to 130.5 ☑ ft ☐ m
BOTTOM OF CASING (bgs) 128.5 ☑ ft ☐ m	BOTTOM OF BOREHOLE (bgs) 130.5 ☑ ft ☐ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Kauer, Rust, Rosane

222-S V09-004-095

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20730	1 / ~~500~~ 125mL / G/P	02TT22	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-096

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20731	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

moist sand some Rock

FIELD OBSERVATIONS

WEATHER 95°F 0-5 mph wind Sunny

FIELD COMMENTS 3 Full Liners

SUPPORT PERSONNEL Hpt, Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Ed Kauer	[signature]	8-4-09
CHECKED BY	B.G. Orth	[signature]	8-5-09

PRINTED BY TMJOHANS ON 4/22/2009 12:40:32 PM A-6004-701 (REV.0)

Washington River Protection Solutions | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | V09-004-095 | PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 28	DATA TURNAROUND
KANCH, Rust Rosave	CONNELLY, MP	373-3981	WIDRIG, DL	AIR QUALITY ☐	48 Hours / 15 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7184; I-003	Direct Push Samples for SX Interim Barrier		V09-004		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-N-503-2 Pg 18	128.5 to 130.5	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations	N/A		N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20730	SOIL	8-4-09	10:50	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kanch/Ed Robson	8-4-09	Ed Lod RPS/ECLG	8-4-09 1500

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A 6003 618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-096 | PAGE 1 OF 2

COLLECTOR Kauck, Rust, Rosano	**COMPANY CONTACT** CONNELLY, MP	**TELEPHONE NO.** 373-3981	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7184; I-003	**PROJECT DESIGNATION** Direct Push Samples for SX Interim Barrier		**SAF NO.** V09-004
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-503.2 Pg 18	**ACTUAL SAMPLE DEPTH** 128.5 to 130.5	**COA** 301483ES10
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A

PRICE CODE 8P
AIR QUALITY ☐
DATA TURNAROUND 75 Days / 75 Days
METHOD OF SHIPMENT GOVERNMENT VEHICLE

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20731	SOIL	8-4-09	10:50	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauck / [illegible]	8-4-09 1500	[illegible]	8-4-09 1500

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-096	PAGE 2 OF 2
COLLECTOR Kaus, Rust, Rosane	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7184; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. Pg 18 HNF-N-503-2	ACTUAL SAMPLE DEPTH 128.5 to 130.5	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

19

C-7184 SX Farm HNF-N-503-2 pg 19
Date 8-10-09 Weather 80°F Sunny wind 0.5 mph
NCOs Kaver - Rust
Drillers Energy Solutions
FWS Bill Clark RWP CO-511
0800 One site for prejob + sign in and prep for sampling
0910 - completed I-004 at 141' to 143'
B20 VK 6
B20 VK 7
All Linners were 100% full of soil Field Readings did not exceed background Levels
330 - Samples were deliviered to 2225 - Labs per Blue Card #6
1443 - No Further Entries this Date [signature] 8-10-09

EMC
8-10-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier

PAGE 1 OF 1

DATE/TIME 8-10-09/0910

SAF NO.(S) V09-004

LOCATION C7184; I-004

LOGBOOK NO./PAGE HNF-N-503-2 PG 78

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 141 to 143' ☑ft ☐m

BOTTOM OF CASING (bgs) 141' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 143' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Kauk, Rust

222-S V09-004-201

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20VK6	1 / ~~500mL~~ 125mL / G/P	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-202

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20VK7	3 / 160mL / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Clay moist Light ~~Brown~~ Brown

FIELD OBSERVATIONS

WEATHER 77°F 0-5 mph wind Sunny

FIELD COMMENTS

SUPPORT PERSONNEL Hpt's, Drillers, FW's

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Ed Kauk (PRINT NAME) (SIGN NAME) 8-10-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) (SIGN NAME) 8-10-09 (DATE)

PRINTED BY TMJOHANS ON 5/20/2009 10:41:33 AM A-6004-701 (REV.0)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-201 PAGE 1 OF 1

COLLECTOR: Kauer, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7184; I-004	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: ~~503~~ P-178 HNF-N-~~503~~-2	ACTUAL SAMPLE DEPTH: 141' to 143'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

31°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 20 125 mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20VK6	SOIL	8-10-09	0910	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, Edward Kauer	8-10-09 1330	R Hickel RHickel	8-10-09 1330

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-202 PAGE 1 OF 2

COLLECTOR: Kauer, Root	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7184; I-004	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: 303 PS78 HNF-N-~~303~~-2	ACTUAL SAMPLE DEPTH: 141' to 143'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

31°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160ml.
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20VK7	SOIL	8-10-09	0910	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, [signature]	8-10-09 1380	RKSteele	8/10/09 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
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

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ALL 3 Liners Full

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

A-6003-618(01/05)

RPP-43548, Rev. 0

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-202 PAGE 2 OF 2

COLLECTOR Kaver, Rust	**COMPANY CONTACT** CONNELLY, MP	**TELEPHONE NO.** 373-3981	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7184; I-004	**PROJECT DESIGNATION** Direct Push Samples for SX Interim Barrier		**SAF NO.** V09-004	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** 503 8578 HNF-N-~~503~~-2	**ACTUAL SAMPLE DEPTH** 141' to 143'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-005-003	PAGE 1 OF 2
COLLECTOR: TAUER, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7186; I-002EB	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier QC Sample		SAF NO.: V09-005	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 (1521)	ACTUAL SAMPLE DEPTH: N/A	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

33°

SPECIAL HANDLING AND/OR STORAGE: 222S20090635

PRESERVATION	HNO3 to pH <2	Cool~4C	Cool~4C	None	HNO3 to pH <2(ULTREX)	HNO3 to pH <2	Cool~4C	None		
TYPE OF CONTAINER	G/P	G/P	G/P	G/P	Nalgene	G/P	G/P	P		
NO. OF CONTAINER(S)	1	1	1	1	1	1	1	1		
VOLUME	500mL	250mL	500mL	500mL	500mL	500mL	500mL	125mL		
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS ✓	SEE ITEM (2) IN SPECIAL INSTRUCTIONS ✓	2320_ALKALINITY (TF) (Alkalinity) ✓	ALPHA_BETA_LSC (TF) (Gross alpha, Gross beta) ✓	SEE ITEM (3) IN SPECIAL INSTRUCTIONS ✓	SEE ITEM (4) IN SPECIAL INSTRUCTIONS ✓	SEE ITEM (5) IN SPECIAL INSTRUCTIONS ✓	pH (Water) - 9040 (TF) (pH Measurement) ✓		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B20768	WATER	8-12-09	1328	✓	✓	✓	✓	✓	✓	✓	✓	
S09U001204	to S09U001211											

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer / Ed Kauer	8-12-09 1400	RAS/Steele	8.12.09 1400
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
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

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-005-003	PAGE 2 OF 2
COLLECTOR Kaner, Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 7P AIR QUALITY [ ]	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7186; I-002EB	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier QC Sample		SAF NO. V09-005		
ICE CHEST NO.	FIELD LOGBOOK NO. 5521 HNF-N-563-2	ACTUAL SAMPLE DEPTH N/R	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.

(1)ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium}

(2)IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

(3)RADISO_ICPMS (TF) {Americium-241, Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Neptunium-237, Plutonium-239, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238}

(4)GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

(5)Conductivity - 9050 (Tier 1) {Specific Conductance}

A-6003-618(01/06)

20

C-7186 SX FARMS HNF-N-503-2 pg 20
Date: 8-12-09 Weather 78°F 0-5 mph wind
NCO's - Kause Rust Partially Cloudy
FWS - Bill Clark RWP - CO-511
0930 - on site Pre-Job signed in
1030 - Completed I-001 @ 105' to 107'
B20732 V09-004-097 } 222-S LABS
B20733 V09-004-098 }
1100 - Delivered Samples to 222-S LABS
per Blue Card #6
1235 - No further Entries this Date [illegible] 8-12-09

SL
8-12-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-12-09/1030
SAF NO.(S) V09-004	
LOCATION C7186; I-001	LOGBOOK NO./PAGE HNF-N-503-2 P920
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 105'+0/107' ☑ft ☐m
BOTTOM OF CASING (bgs) 105 ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 107 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Kauer / Rust

222-S V09-004-097

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20732	1 / ~~500mL~~ 250mL / G/P EK 8-12-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-098

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20733	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

moist Sand Dark Brown

FIELD OBSERVATIONS

WEATHER 76°F 0-5 mph wind partly cloudy

FIELD COMMENTS ALL 3 Liners full 100%

SUPPORT PERSONNEL Hpt, Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Ed Kauer	[signature]	8-12-09
CHECKED BY	B.G. Orth	[signature]	8-12-09

PRINTED BY TMJOHANS ON 4/22/2009 12:40:39 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-097	PAGE 1 OF 1
COLLECTOR: Kaney Rest	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7186; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 Pg 20	ACTUAL SAMPLE DEPTH: 105 to 107'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 20090372

PRESERVATION	Cool=4C											
TYPE OF CONTAINER	G/P											
NO. OF CONTAINER(S)	1											
VOLUME	500mL ~~250mL~~ BL 8-12-09	125mL										
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS											

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B20732	SOIL	8-12-09	1030	✓									
509V001183													
↓													
1184													
1185													

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Ed Kaney / [signature]	8-12-09 1100	RECEIVED BY/STORED IN: [signature] RS Cole	8-12-09 1100
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
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

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 mL~~ 125 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V09-004-098	PAGE 1 OF 2
COLLECTOR: Kauer Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P; AIR QUALITY: ☐; DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7186; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 p920	ACTUAL SAMPLE DEPTH: 105' to 107'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20733	SOIL	8-12-09	1030	✓
SC9V000 1186	A			
1187	B			
1188	C			

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer / [illegible]	8-12-09 1100	R L Steele	8-12-09 1100

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-098	PAGE 2 OF 2
COLLECTOR KANEL, RUST	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7186; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. PG 20 HNF-N-503-2	ACTUAL SAMPLE DEPTH 105' to 107'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinty, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta}
RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-099	PAGE 1 OF 1
COLLECTOR: Kaver Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days
SAMPLING LOCATION: C7186; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: Pg 22 HNF-N-507-2	ACTUAL SAMPLE DEPTH: 128' to 130'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

330

SPECIAL HANDLING AND/OR STORAGE: 20090607

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20734	SOIL	08-13-09	1000	✓
509V001198				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kaver	8-13-09 1400	RF Steele	8-13-09 1400

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 mL~~ 125 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-100	PAGE 1 OF 2
COLLECTOR: Kauer, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7186; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 Pg 22	ACTUAL SAMPLE DEPTH: 128' to 130'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
20090607

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20735	SOIL	08-13-09	10 00	✓
S09V00 1201	A			
1202	B			
1203	C			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E.J. Kauer, [signature]	8-13-09 [signature] 1400	[signature] RH Steele	8.13.09 1400

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-100	PAGE 2 OF 2
COLLECTOR Kauer, Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7186; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. Pg 22 1/NF-N-503-2	ACTUAL SAMPLE DEPTH 128' to 130'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

23

C-7186 SX FARMS HNF-N-503-2 pg23
Date: 8-17-09 Weather 72°F to 90°F 0-5 mph wind
NCO's Kauer Rust Sunny
FWS Bill Clark RWP: CO-511
0730 - On site Pre Job Sign in
0905 - Completed I-003 @ 145' to 147'
B20736 V09-004-101 } 222-S Labs
B20737 V09-004-102 }
All 3 Liners full 100%
Field Readings Below Background
1430 Delivered Samples to 222-S Labs
1500 - No Further Entries this Date [illegible] 8-17-09

EK
8-17-09

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for 5X Interim Barrier	PAGE 1 OF 1
	DATE/TIME 8-17-09 / 0905
SAF NO.(S) V09-004	
LOCATION C7186; I-003	LOGBOOK NO./PAGE HNF-N-503-2 PG 23
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 145 to 147 ☑ft ☐m
BOTTOM OF CASING (bgs) 145 ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 147 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Kauer, Rust

222-S V09-004-101

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20736	1 / ~~500mL~~ 125mL / G/P	027722	Cool-4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-102

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20737	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ 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.)]

Light Brown Clay moist

FIELD OBSERVATIONS

WEATHER 77°F Sunny Wind 0-5 mph

FIELD COMMENTS All 3 Liners full 100%

SUPPORT PERSONNEL Hpt, Drillers, FWS

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Ed Kauer	[signature]	8-17-09
CHECKED BY	RW Plunkett CHPRC	Roy Plunkett	8-18-09

PRINTED BY TMJOHANS ON 4/22/2009 12:40:52 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-004-101	PAGE 1 OF 1

COLLECTOR: Kauer Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7186; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 23	ACTUAL SAMPLE DEPTH: 145 to 147'	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 2B
AIR QUALITY: ☐
DATA TURNAROUND: 48 Hours / 15 Days
METHOD OF SHIPMENT: GOVERNMENT VEHICLE

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

1/5°

SPECIAL HANDLING AND/OR STORAGE: 222S2000372

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL 8-17-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20736	SOIL	8-17-09	0905	✓
S09V00 12/8				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer/	8-17-09 1420	R Steele	8-17-09 1430

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken.. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a ~~500 ml~~ 125 ml bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-102	PAGE 1 OF 2
COLLECTOR: Kruse, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7186; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 P423	ACTUAL SAMPLE DEPTH: 145 to 147	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

43°

SPECIAL HANDLING AND/OR STORAGE: 222S00903 72

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20737	SOIL	8-17-09	0905
5G9F00d 1221			
1222			
1223			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kruse, [illegible]	8-17-09 1430	Richard R Steele	8.17.09 1430

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-102	PAGE 2 OF 2
COLLECTOR Kauer, Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7186; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. PS23 HNF-N-503-2	ACTUAL SAMPLE DEPTH 145 to 147	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 7-9-09 / 1315
SAF NO.(S) V09-004	
LOCATION C7192; I-001	LOGBOOK NO./PAGE HNF-N-503-2 pg 15
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 100'-102' ☑ft ☐m
BOTTOM OF CASING (bgs) 100' ☐ft ☐m	BOTTOM OF BOREHOLE (bgs) 102' ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane, Rust

222-S V09-004-115

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20750	1 / ~~500mL~~ 125 mL / G/P 7-9-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-116

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20751	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Clay & Moist,

FIELD OBSERVATIONS

WEATHER 85° Sunny Wind 5-10 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers, FWS.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO 6

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Larry Rosane	Larry Rosane	7-9-09
CHECKED BY	Steve Rust	[signature]	7-9-09

PRINTED BY TMJOHANS ON 4/22/2009 12:41:38 PM A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-115	PAGE 1 OF 1
COLLECTOR: Rosane, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7192; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 15	ACTUAL SAMPLE DEPTH: 100'-102'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

222S20090372

SPECIAL HANDLING AND/OR STORAGE: 65°

PRESERVATION	Cool~4C												
TYPE OF CONTAINER	G/P												
NO. OF CONTAINER(S)	1												
VOLUME	~~500mL~~ 125mL 7-9-09												
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS												

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B20750	SOIL	7-9-09	1315	✓									
S09V000830													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-9-09 / 1440	RHGde RHGde	7-9-09 1440
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
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

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-116	PAGE 1 OF 2
COLLECTOR: Rosane, Rust	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7192; I-001	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.:	FIELD LOGBOOK NO.: HNF-N-503-2 pg 15	ACTUAL SAMPLE DEPTH: 100'-102'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 2C090372

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20751	SOIL	7-9-09	1315	✓
509V060834	A			
832	B			
X 833	C			

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-9-09 / 1445	RL Steele RL Steele	7-9-09 1445

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-518(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-116	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7192; I-001	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-2 pg 15	ACTUAL SAMPLE DEPTH 100' - 100'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group s taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta} RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

C-7192 SX Farms HNF-W-503-2 pg 16

Date: 7-27-09

Weather 97°F Sunny Wind 0-5mph

WO - Rossine

Drilling - Energy Solutions

FWS - Bill Clark RWP CO-511 - Rev. 1

0700 - On site for pre job sign in preparing for sample I-002

0945 - Completed sample I-002 @ 128'-130'

B20752, V09-004-117 } 222-S
B20753 V09-004-118 }

1250 - Completed sample I-003 @ 140'-142'

B20754 V09-004-119 } 222-S
B20755 V09-004-120 }

all liners were 100% full of soil. Field readings did not exceed background levels

1415 - Samples were delivered to 222-S labs per blue Card #6

Last entry this Date 7-27-09 LR

Larry Rossine

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 7-27-09/0945
SAF NO.(S) V09-004	
LOCATION C7192; I-002	LOGBOOK NO./PAGE HNF-N-503-2 pg 16
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 128-130' ☑ft ☐m
BOTTOM OF CASING (bgs) 128' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 130' ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosane

222-S V09-004-117

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20752	1 / ~~500mL~~ 125mL / G/P SJR 7-27-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-118

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20753	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Silt moist No Rock

FIELD OBSERVATIONS

WEATHER 90°F Sunny Wind 0-5 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Drillers EWS.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 7-27-09 (DATE)

CHECKED BY B. Orth (PRINT NAME) [signature] (SIGN NAME) 7-27-09 (DATE)

PRINTED BY TMJOHANS ON 4/22/2009 12:41:45 PM A-6004-701 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-117	PAGE 1 OF 1
COLLECTOR: Rosane	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 2B	DATA TURNAROUND
SAMPLING LOCATION: C7192; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	48 Hours / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 16	ACTUAL SAMPLE DEPTH: 128'-130'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

GRPH
2009037C

SPECIAL HANDLING AND/OR STORAGE: 48

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125 mL 7-27-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20752	SOIL	7-27-09	0945
S09V000836			

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-27-09 / 1415	RHTed RHSteele	7-27-09 1415
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
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

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

RPP-43548, Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-118	PAGE 1 OF 2
COLLECTOR: Rosane	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7192; I-002	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier		SAF NO.: V09-004	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-503-2 pg 16	ACTUAL SAMPLE DEPTH: 128'-130'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 20090372

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20753	SOIL	7-27-09	0945	✓
S09V000 837				
838				
839				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-27-09 / 1415	[signature] RtHtoc-16	7.27.09 1415

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003 618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-118	PAGE 2 OF 2
COLLECTOR Rosante	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7192; I-002	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-2 pg 16	ACTUAL SAMPLE DEPTH 128-130'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta}
RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) Direct Push Samples for SX Interim Barrier	PAGE 1 OF 1
	DATE/TIME 7-27-09/1250
SAF NO.(S) V09-004	
LOCATION C7192; I-003	LOGBOOK NO./PAGE HNF-N-503-2 pg 16
WELL NAME N/A	WELL ID N/A ACTUAL DEPTH 140'-142' ☑ft ☐m
BOTTOM OF CASING (bgs) 140' ☑ft ☐m	BOTTOM OF BOREHOLE (bgs) 142' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 4 TOTAL NUMBER OF CHAINS 2 COLLECTOR Rosanne

222-S V09-004-119

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20754	1 / ~~500mL~~ 125mL / G/P JJP 7-27-09	027722	Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-004-120

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20755	3 / 160g / Liner	N/A	None	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6269 ☐ OTHER

CONTAINER/DRUM/TOTE/BOX

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.)]

Silt no Rock Moist

FIELD OBSERVATIONS

WEATHER 97°F Sunny Wind 0-5mph

FIELD COMMENTS

SUPPORT PERSONNEL RCT Drillers, F.W.S.

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

IS A BLUE CARD REQUIRED ☑ YES ☐ NO BLUE CARD NO #6

IS SRS PROVIDED AND COMPLETE ☐ YES ☑ NO

	PRINT NAME	SIGN NAME	DATE
RECORDED BY	Larry Rosanne	Larry Rosanne	7-27-09
CHECKED BY	B.G. Orth	[illegible]	7-27-09

PRINTED BY TMJOHANS ON 4/22/2009 12:41:51 PM A-6004-701 (REV.0)

OFFICIAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-119 PAGE 1 OF 1

COLLECTOR: Rosawe	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 2B	DATA TURNAROUND: 48 Hours / 15 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7192; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier	SAF NO.: V09-004	
ICE CHEST NO.:	FIELD LOGBOOK NO.: HWFN-503-2 pg 16	ACTUAL SAMPLE DEPTH: 140'-142'	COA: 301483ES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE			
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

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 may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

20090372

SPECIAL HANDLING AND/OR STORAGE: 58°

PRESERVATION	Cool~4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ 125mL JAR 7-27-09
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20754	SOIL	7-27-09	1250	✓
509V000847				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe Larry Rosawe	7-27-09/1415	RHS/Gell RHS/Gell	7-27-09 1415

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory with even number samples being "Quick Turn Samples". Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material.
(1)2320_ALKALINITY (TF) {Alkalinity} RADISO_ICPMS_WE (TF) {Technetium-99} IC Anions - 9056 (Tier 1) {Nitrate}

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

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-004-120

PAGE 1 OF 2

COLLECTOR: Rosane	COMPANY CONTACT: CONNELLY, MP	TELEPHONE NO.: 373-3981	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7192; I-003	PROJECT DESIGNATION: Direct Push Samples for SX Interim Barrier	SAF NO.: V09-004	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-303-2 pg 16	ACTUAL SAMPLE DEPTH: 140'-142'	COA: 301483ES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE	SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, W1=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

2009872

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B20755	SOIL	7-27-09	1250	✓
Sample 843				
844				
845				

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	7-27-09 / 14:15	Robert Steele	7-27-09 1415

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-618(01/05)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-004-120	PAGE 2 OF 2
COLLECTOR Rosanne	COMPANY CONTACT CONNELLY, MP	TELEPHONE NO. 373-3981	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE BP	DATA TURNAROUND
SAMPLING LOCATION C7192; I-003	PROJECT DESIGNATION Direct Push Samples for SX Interim Barrier		SAF NO. V09-004	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-503-2 pg 16	ACTUAL SAMPLE DEPTH 140'-142'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

There are 21 sampling sites at each sampling site there will be 3 vertical samples taken. At each vertical samples, there is a "Quick Turn" Sample that only has Alkalinity, Nitrate and Tc-99 Analysis due 48 hours after sample is received by laboratory. Furthermore, the quick turn sample is taken from the drive shoe and placed in a 500 mL bottle. The Tier 1 analysis due 90 calendar days after last sample in group is taken. The tier 1 analysis is taken from Liner A, with the other liners held in reserve for additional sample material. Tier 1 Samples are odd-numbered samples
(1)6010M_ICP_AE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} 6010M_ICP_WE (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Rhenium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Uranium, Vanadium, Yttrium, Zinc, Zirconium} IC Anions - 9056 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} ALPHA_BETA_LSC_AE (TF) {Gross alpha, Gross beta} ALPHA_BETA_LSC_WE (TF) {Gross alpha, Gross beta}
RADISO_ICPMS_ASTM_AE {Americium-241, Neptunium-237, Plutonium-239, Technetium-99, Uranium-238} RADISO_ICPMS_WE (TF) {Antimony-121, Antimony-123, Arsenic-75, Cadmium-111, Cadmium-114, Chromium-52, Chromium-53, Copper-63, Copper-65, Iodine-129, Lead-206, Lead-208, Molybdenum-95, Molybdenum-97, Molybdenum-98, Ruthenium-101, Ruthenium-102, Ruthenium-104, Selenium-82, Silver-107, Silver-109 metastable, Technetium-99, Uranium-238} GAMMA ENERGY ANALYSIS (Tier 1) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Conductivity - 9050 (Tier 1) {Specific Conductance} Percent Solids (TF) {Percent Solids} Percent Water (TF) {Percent moisture (wet sample)} pH (Soil) - 9045 (Tier 1) {pH Measurement}

A-6003-618(01/06)

APPENDIX F

WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTS

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ENERGYSOLUTIONS

March 24, 2009 MGG-09-5218

Sate of Washington
Department of Ecology
Water Resources Program
Well Drilling Unit
Post Office Box 47600
Olympia, Washington 98504-7600

Subject: Notice of Intent to Construct, Decommission, and Install Moisture Probes in Geotechnical Borings

To Whom It May Concern,

Attached is the Notice of Intent to Construct (S27649) and Decommission (A118512) Soil sampling (contaminants) borings. These Notice of Intent forms have been completed with information pertaining to 50 borings (25 investigative and 25 soil sampling borings). These borings are located on the Hanford Site, 200 West Area, in and adjacent to the SX Tank Farm.

These borings are supporting the Washington River Protection Solutions vadose zone characterization program. A majority of these borings will be decommissioned following acquisition of geophysical and soil characterization data. Selected borings will be used to install resistivity (moisture) probes and will be documented on the applicable Well Completion Report.

In accordance with Washington Administrative Code 173-160-451, a Variance has been obtained for these direct push boreholes (reference Variance Request for Direct Push Boreholes dated March 12, 2009).

If you have any questions, please contact me at (509) 375-9587.

Sincerely

Martin G. Gardner, Manager
Remediation and Well Services

jmt

Attachments

WRPS - H. A. Sydnor

CHPRC - S. H. Worley

Energy*Solutions* - K. D. Reynolds
D. E. Skoglie
R. Z. Steffler
MGG File/LB

ENERGYSOLUTIONS

MGG-09-5218

ATTACHMENT

Notice of Intent to Construct, Decommission and
Install Monitoring Probes in Geotechnical Soil Boring

Consisting of 3 pages
including cover sheet

WASHINGTON STATE DEPARTMENT OF ECOLOGY

NOTICE OF INTENT TO CONSTRUCT A

Notification Number S 27649

Please check one: ☐ GEOTECH SOIL BORING
☒ SOIL SAMPLING (CONTAMINANTS)
☐ VAPOR SAMPLING

This form MUST BE RECEIVED by the Department of Ecology 72 HOURS BEFORE you construct a well.

Submit one form for each job site. **Mail this form to the Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.** Instructions for filling out this form are printed on the back.

NOTE: PLEASE PRINT ALL ANSWERS. PROCESSING YOUR NOTICE OF INTENT MAY BE DELAYED IF ALL FIELDS OUTLINED IN THE BOXES ARE NOT FILLED IN COMPLETELY.

1. Property Owner U.S. Department of Energy Phone No. (509) 373-9630
   Address (include city, state, zip) 825 Jadwin Ave., Richland, Wa 99352
2. Consulting Firm (if different from #1): Energy Solutions Phone No. (509) 375-9587
   Address (include city, state, zip) Stevens Dr., Richland, Wa 99354

01-Adams, 02-Asotin, 03-Benton, 04-Chelan, 05-Clallam, 06-Clark, 07-Columbia, 08-Cowlitz, 09-Douglas, 10-Ferry, 11-Franklin, 12-Garfield, 13-Grant, 14-Grays Harbor, 15-Island, 16-Jefferson, 17-King, 18-Kitsap, 19-Kittitas, 20-Klickitat, 21-Lewis, 22-Lincoln, 23-Mason, 24-Okanogan, 25-Pacific, 26-Pend Oreille, 27-Pierce, 28-San Juan, 29-Skagit, 30-Skamania, 31-Snohomish, 32-Spokane, 33-Stevens, 34-Thurston, 35-Wahkiakum, 36-Walla Walla, 37-Whatcom, 38-Whitman, 39-Yakima

3. Print COUNTY NAME of well location (*DO NOT ABBREVIATE*) BENTON
4. Well Location: SW 1/4-1/4 of the SE 1/4 Section 12 Township 12 N Range 25 EWM or WWM (*circle one*)
5. Total number of borings to be constructed Fifty (50)
6. Approx construction start date MARCH 28, 2009

Latitude and longitude (if available) NOTE: 1/4-1/4, 1/4, section, township and range are REQUIRED.

Lat Degrees _____ Lat Time _____

Long Degrees _____ Long Time _____ Horizontal Collection Method _____

7. Well Site Street Address HAN Ford Site, 200 West Area, IN & NEAR SX TANK FARM
8. Tax parcel number N/A
9. Contractor L & I Registration No. DURATFS990KS
10. Well Drilling Company Name Energy Solutions Phone No. (509) 375-9591
11. Well Driller Name David E. Skoglie License No. 1580
12. SEND THE ENTIRE FORM. The bottom portion of this notice will be validated in our office and sent back to the name and address contained on the address label. This is the proof of notification. Please fill out the portion below CAREFULLY.

NOTE: Please copy the Notification Number (located in the upper and lower right corner) and keep in a safe place. Please reference this number when communicating with the Department of Ecology.

This notification number must be provided to your well driller: S 27649

RETURN NAME AND MAILING ADDRESS

Name David E. Skoglie
Mailing Address P.O. Box 4328
City W. Richland State Wa Zip 99353
SX TANK FARM 3/09

Client Name _____

Agency Validation
Date: _____

ECY 040-55 (Rev. 10/02)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

NOTICE OF INTENT TO DECOMMISSION A WELL

Notification Number
A 118512

This form *MUST BE RECEIVED by the Department of Ecology 72 HOURS BEFORE you decommission a well.*

Submit one form and required fee (check or money order ONLY) for each job site. Mail this form to the Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 5128, Lacey, WA 98503-5128. Instructions for filling out this form are printed on the back.

NOTE: PLEASE PRINT ALL ANSWERS. PROCESSING YOUR NOTICE OF INTENT MAY BE DELAYED IF ALL FIELDS OUTLINED IN THE *BOXES* ARE NOT FILLED IN COMPLETELY.

1. Property Owner U.S. Department of Energy Phone No. (509) 373-9630
Mailing Address 825 Jadwin Ave City Richland State Wa Zip 99352

2. Agent (if different from #1): WRPS Phone No. (509) 373-3967
Mailing Address 2440 Stevens Dr. City Richland State Wa Zip 99354

3. Well Location: SW 1/4-1/4 of the SE 1/4 Section 12 Township 12N Range 25 *Circle one* (EWM or WWM)
4. Print COUNTY NAME of well location (DO NOT ABBREVIATE) BENTON
5. Type of well to decommission *(please "x" appropriate circle below)*

O Water Well ($50.00)		Rev. Code: 027-WEL8-02-87-000108
O Resource Protection ($20.00 ea)	How many?	Rev. Code: 027-WEL9-02-87-000109
O Ground Source Heat pump ($20.00 ea)	How many?	Rev. Code: 027-WL10-02-87-000110
O Grounding Well ($20.00 ea)	How many?	Rev. Code: 027-WL10-02-87-000110
● Geotech Soil Boring (No Fee)	How many? 25	
● Soil Sampling (No Fee)	How Many? 25	
O Environmental Investigation Well (No Fee)	How Many?	

Latitude and longitude (if available) NOTE: 1/4, 1/4, section, township and range are REQUIRED.
Lat Degrees _____ Lat Time _____
Long Degrees _____ Long Time _____ Horizontal Collection Method _____

6. Well Site Street Address Hanford Site, 200 West Area, In & Near SX Tank Farm
7. Notice of Intent No. of well being decommissioned and Unique Well ID Tag # (if applicable) _____
8. Tax parcel number N/A 9. Approx. decommissioning start date 4/15/09

10. Contractor L & I Registration No. DURATFS 990KS
11. Well Drilling Company Name Energy Solutions Phone No. (509) 375-9591
12. Well Driller Name David E. Skoglie License No. 1580

13. SEND THE ENTIRE FORM. The bottom portion of this notice will be validated in our office and sent back to the name and address contained on the address label. This is the proof of notification. Please fill out the portion below CAREFULLY.

14. NOTE: Please copy the Notification Number (located in the upper and lower right corner) and keep in a safe place. Please reference this number when communicating with the Department of Ecology.

Total Enclosed

_____ **Water Well $50.00**
_____ **Resource Protection Well =$20.00 per Well**

This notification number must be provided to your well driller:
A 118512

RETURN NAME AND MAILING ADDRESS

Client Name_____

Name David E. Skoglie
Mailing Address P.O. Box 4328
City W. Richland State Wa Zip 99353
SX Tank Farm 3/09

Agency Validation
Date:

ECY 040-24 (Rev. 7/05)

ENERGYSOLUTIONS

September 15, 2009 MGG-09-5269

State of Washington
Department of Ecology
Nuclear Waste Program
Hanford Project
3100 Port of Benton Boulevard
Richland, Washington 99354

Subject: Water Well Reports

To Whom It May Concern,

Attached are Water Well Report forms addressing decommissioning operations for 28 geotechnical borings. These Water Well report forms have been completed with information from field operations (reference Notice of Intent Start Card S27649 and Abandonment Start Card A118512). These geotechnical borings are located on the Hanford Site, 200 West Area, SX Tank Farm.

The Hanford Site specific well designations for these soil borings are C7171, C7177, C7181, C7179, C7169, C7167, C7172, C7187A, C7178, C7191, C7183, C7180, C7170A, C7185A, C7185, C7192A, C7168, C7170, C7192, C7184, C7186, C7153, C7157, C7155, C7154A, C7154, C7158, and C7156.

The fractional section system topographical location for these geotechnical borings is SW¼NE¼ Section 2, Township 12N, Range 26EWM.

If you have any questions, please contact me at 375-9587.

Very truly yours,

Martin G. Gardner, Manager
Remediation and Well Services

jmr

Attachments

WRPS	- H. A. Sydnor	S7-66
CHPRC	- S. H. Worley	R3-60
Energy*Solutions*	- K. D. Reynolds	G2-02
	D. E. Skoglie	G2-02
	R. Z. Steffler	G2-02
	MGG File/LB	

2345 Stevens Drive, Suite 240 • Richland, WA 99354
509.371.8006 • Fax: 509.375.9500 • www.energysolutions.com

ENERGYSOLUTIONS

MGG-09-5269

ATTACHMENT

Water Well Reports

Consisting of 29 pages
including cover sheet

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7171

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 158 ft

Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.

☐ Liner installed ____" Diam. from ____ ft. to ____ ft.

☒ Threaded 2.5" Diam. From 0 ft. to 158 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED)

Lat Deg ____ Min ____ Sec ____

Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	157.6
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.25 cu ft bentonite crumbles.	157.6	0.0
Moisture resisitivity probes were placed at a depth of 144 and 70 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 07/14/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7171 located on the Hanford Site, (SX Tank Farm).		

Start Date 04/14/09 Completed Date 07/14/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/13/09

Ecy 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7177

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 157 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 157 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	157
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.27 cu ft bentonite crumbles.	157	0.0
Moisture resisitivity probes were placed at a depth of 143 and 75 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 07/14/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7177 located on the Hanford Site, (SX Tank Farm).		

Start Date 04/16/09 Completed Date 07/14/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/13/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7181

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 156 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.5" Diam. From 0 ft. to 156 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perf's ____ in. by ____ in. and no. of perf's ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~PUMP: Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: ~~Land-surface elevation above mean sea level ____ ft.~~

~~Static level ____ ft. below top of well Date ____~~ N/A

~~Artesian pressure ____ lbs. per square inch Date ____~~

~~Artesian water is controlled by ____ (cap, valve, etc.)~~

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	156
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.27 cu ft bentonite crumbles.	156	0.0
Moisture resisitivity probes were placed at a depth of 142 and 75 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 07/14/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7181 located on the Hanford Site, (SX Tank Farm).		

Start Date 04/20/09 Completed Date 07/14/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/13/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7179

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 156 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 156 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~**PUMPS** Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

~~**WATER LEVELS:** Land-surface elevation above mean sea level ____ ft.~~

~~Static level ____ ft. below top of well Date ____~~

~~Artesian pressure ____ lbs. per square inch Date ____~~

~~Artesian water is controlled by ____ (cap, valve, etc.)~~

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 SE 1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	156
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.25 cu ft bentonite crumbles.	156	0.0
Moisture resisitivity probes were placed at a depth of 145 and 76 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 07/14/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7179 located on the Hanford Site, (SX Tank Farm).		

Start Date 04/22/09 Completed Date 07/14/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller-Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No DURATFS990K5 Date 08/13/09

ECY 050-1-20 (Rev. 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7169

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 160 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 160 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____from ____ft. to ____ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~**PUMPS:** Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ft. drawdown after ____hrs.

Airtest ____ gal. min. with stem set at ____ft. for ____hrs.

Artesian flow ____g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	160
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.31 cu ft bentonite crumbles.	160	0.0
Moisture resisitivity probes were placed at a depth of 144 and 74 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 07/14/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7169 located on the Hanford Site, (SX Tank Farm).		

Start Date 04/24/09 Completed Date 07/14/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/13/09

ECY 050-1-20 (Rev 3/95)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7167

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 152 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.5" Diam. From 0 ft. to 152 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~**PUMP:** Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	152
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
Geophysical logging (Gamma		
and Moisture) were conducted		
The tubing was back-pulled	152	0.0
and boring decommissioned		
with 5.1 cu ft bentonite		
crumbles.		
Moisture resisitivity probes		
were placed at a depth of		
146 and 72 ft bgs. Sand		
was placed around the probe.		
Surface Protection was placed		
on 07/24/09.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 1: This boring is C7167		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 04/28/09 Completed Date 07/24/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David C. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/13/09

ECY 050-1-20 (Rev 3/05)

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WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7172

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 131 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.6" Diam. From 0 ft. to 131 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perf's ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 SE 1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	131
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	131	0.0
and boring decommissioned		
with 25 gallons bentonite		
crumbles.		
NOTE 1: Samples obtained		
46 - 48 ft bgs;		
75.5 - 77.5 ft bgs;		
97.5 - 99.5 ft bgs;		
126 - 128 ft bgs.		
NOTE: Tubing separated 57 ft		
bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7172		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 05/18/09 Completed Date 05/27/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David C. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No DURATFS990K5 Date 08/26/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7178

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 151 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 151 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ HP ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	151
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	153	0.0
and boring decommissioned		
with 5.65 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
89 - 91 ft bgs;		
127 - 129 ft bgs;		
151 - 153 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7178		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 05/28/09 Completed Date 06/10/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David C. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/20/09

ECY 050-1-20 (Rev. 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7191

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 157 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.5" Diam. From 0 ft. to 157 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

~~**PUMPS:** Manufacturer's Name _____~~

~~Type: _____ H.P. _____~~

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date N/A

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test _____ gal. min. with _____ ft drawdown after ___ hrs

Airtest _____ gal/min with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	156.6
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.2 cu ft bentonite crumbles.	156.6	0.0
Moisture resisitivity probes were placed at a depth of 142 and 96 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 08/25/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7191 located on the Hanford Site, (SX Tank Farm).		

Start Date 06/02/09 Completed Date 08/25/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/02/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7183

☐ New well ☐ Reconditioned *Method* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 154 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.5" Diam. From 0 ft. to 154 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	154
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
Geophysical logging (Gamma		
and Moisture) were conducted		
The tubing was back-pulled	154	0.0
and boring decommissioned		
with 5.17 cu ft bentonite		
crumbles.		
Moisture resisitivity probes		
were placed at a depth of		
148 and 66 ft bgs. Sand		
was placed around the probe.		
Surface Protection was placed		
on 07/14/09.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 1: This boring is C7183		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 06/10/09 Completed Date 07/14/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/14/09

ECY 050-1-20 (Rev. 3/05)

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WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C/180

☐ New well ☐ Reconditioned *Method* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 152 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 152 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No ____

Diam. ____ Slot size ____ from ____ ft to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	152
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	154	0.0
and boring decommissioned		
with 5.6 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
86 - 88 ft bgs;		
93 - 95 ft bgs;		
104 - 106 ft bgs;		
127 - 129 ft bgs;		
152 - 154 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7180		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 06/11/09 Completed Date 06/23/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No.

Driller's Signature: David C. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS99CK5 Date 08/20/09

ECY 050-1-20 (Rev. 3/95)

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WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7185

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 157 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 157 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____from ____ft. to ____ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ft. drawdown after ____hrs.

Airtest gal./min. with stem set at ____ft. for ____hrs.

Artesian flow ____g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	157
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.25 cu ft bentonite crumbles.	157	0.0
Moisture resisitivity probes were placed at a depth of 143 and 58 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 08/25/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7185 located on the Hanford Site, (SX Tank Farm).		

Start Date 07/09/09 Completed Date 08/25/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/27/09

ECY 050-1-20 (Rev. 3/05)

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WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7168

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 145 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.6" Diam. From 0 ft. to 145 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	145
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	147	0.0
and boring decommissioned		
with 5.4 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
81 - 83 ft bgs;		
129 - 131 ft bgs;		
145 - 147 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7168		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 07/01/09 Completed Date 07/23/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller, Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/20/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7170

☐ New well ☐ Reconditioned *Method* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 150 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 150 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____from ____ft. to ____ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____Slot size ____ from ____ ft. to ____ ft.

Diam. ____Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ft. drawdown after ____hrs.

Airtest ____ gal./min. with stem set at ____ft. for ____hrs.

Artesian flow ____g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	150
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	152	0.0
and boring decommissioned		
with 5.65 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
81.5 - 83.5 ft bgs;		
113 - 115 ft bgs;		
133 - 135 ft bgs;		
150 - 152 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7170		
located on the Hanford Site.		
(SX Tank Farm).		

Start Date 06/25/09 Completed Date 07/01/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr

City, State, Zip Richland, Washington, 99352

Contractor's Registration No DURATFS990K5 Date 09/01/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7192

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 140 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.6" Diam. From 0 ft. to 140 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____from ____ft. to ____ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~**PUMP:** Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: ~~Land-surface elevation above mean sea level ____ ft.~~

~~Static level ____ft. below top of well Date ____~~ N/A

~~Artesian pressure ____ lbs. per square inch Date ____~~

~~Artesian water is controlled by ____ (cap, valve, etc.)~~

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ft. drawdown after ____hrs.

Airtest ____ gal./min. with stem set at ____ft. for ____hrs.

Artesian flow ____g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation. Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	140
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	142	0.0
and boring decommissioned		
with 5.3 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
128 - 130 ft bgs;		
140 - 142 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7192		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 07/22/09 Completed Date 07/28/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/27/09

ECY 050-1-20 (Rev. 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7184

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 141 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.6" Diam. From 0 ft. to 141 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____from ____ft. to ____ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____Slot size ____ from ____ ft. to ____ ft.

Diam. ____Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~**PUMP:** Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ft. drawdown after ____hrs.

Airtest gal. min. with stem set at ____ft. for ____hrs.

Artesian flow ____g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	141
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	143	0.0
and boring decommissioned		
with 5.3 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
83 - 85 ft bgs;		
104 - 106 ft bgs;		
128.5 - 130.5 ft bgs;		
141 - 143 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7184		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 07/30/09 Completed Date 08/10/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/27/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7186

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 145 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.6" Diam. From 0 ft. to 145 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~**PUMP:** Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 SE 1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	145
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	147	0.0
and boring decommissioned		
with 5.4 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
105 - 107 ft bgs;		
128 - 130 ft bgs;		
145 - 147 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7186		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 08/11/09 Completed Date 08/17/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/27/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7153

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 156 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 156 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	156
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
Geophysical logging (Gamma		
and Moisture) were conducted		
The tubing was back-pulled	156	0.0
and boring decommissioned		
with 5.2 cu ft bentonite		
crumbles.		
Moisture resisitivity probes		
were placed at a depth of		
142 and 76 ft bgs. Sand		
was placed around the probe.		
Surface Protection was placed		
on 08/28/09.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 1: This boring is C7153		
located on the Hanford Site,		
(Outside SX Tank Farm).		

Start Date 07/28/09 Completed Date 08/28/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No.

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/01/09

ECY 050-1-20 (Rev. 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7157

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 160 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 160 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____from ____ft. to ____ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ cap. valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Yield: ____gal. min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ft. drawdown after ____hrs.

Airtest gal. min. with stem set at ____ft. for ____hrs.

Artesian flow ____g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	160
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
Geophysical logging (Gamma		
and Moisture) were conducted		
The tubing was back-pulled	160	0.0
and boring decommissioned		
with 5.4 cu ft bentonite		
crumbles.		
Moisture resisitivity probes		
were placed at a depth of		
142 and 89 ft bgs. Sand		
was placed around the probe.		
Surface Protection was placed		
on 08/28/09.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 1: This boring is C7157		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 07/31/09 Completed Date 08/28/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie , David

Driller Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David C. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland , Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/01/09

ECY 050-1-20 (Rev 3/95)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7155

☐ New well ☐ Reconditioned *Method* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 156 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft
☒ Threaded 2.5" Diam. From 0 ft. to 156 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~PUMP: Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

~~WATER LEVELS: Land-surface elevation above mean sea level ____ ft.~~

~~Static level ____ ft. below top of well Date N/A~~

~~Artesian pressure ____ lbs. per square inch Date ____~~

~~Artesian water is controlled by ____ (cap, valve, etc.)~~

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 26E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	156
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted.		
The tubing was back-pulled and boring decommissioned with 5.2 cu ft bentonite crumbles.	156	0.0
Moisture resisitivity probes were placed at a depth of 128 and 81 ft bgs. Sand was placed around the probe.		
Surface Protection was placed on 09/09/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09.		
NOTE 1: This boring is C7155 located on the Hanford Site, (SX Tank Farm).		

Start Date 08/03/09 Completed Date 09/09/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No.

Driller's Signature: David E Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/12/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7154

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches. drilled 117 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 117 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____from ____ft. to ____ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____Slot size ____ from ____ ft. to ____ ft.

Diam. ____Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~PUMP: Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: ~~Land-surface elevation above mean sea level ____ ft.~~

~~Static level ____ft. below top of well Date N/A~~

~~Artesian pressure ____ lbs. per square inch Date ____~~

~~Artesian water is controlled by ____ cap, valve, etc.)~~

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____hrs.

Airtest ____ gal./min. with stem set at ____ft. for ____hrs.

Artesian flow ____g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	117
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	117	0.0
and boring decommissioned		
with 25 gallons bentonite		
crumbles.		
NOTE 1: Sample obtained		
106 - 108 ft bgs.		
NOTE: Tubing separated at		
66.7 ft bgs. Tubing left		
in boring from 66.7 ft to		
117 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7154		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 08/17/09 Completed Date 08/18/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller-Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No DURATFS990K5 Date 08/27/09

ECY 050-1-29 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission (*"x" in circle*)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7158

☐ New well ☐ Reconditioned *Method*: ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 141 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 141 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date ____ N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 SE 1/4 Sec 12 Twn 12N R 25E EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	141
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	143	0.0
and boring decommissioned		
with 5.4 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
87 - 89 ft bgs;		
124 - 126 ft bgs;		
141 - 143 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7158		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 08/19/09 Completed Date 08/26/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David L. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 08/27/09

ECY 050-1-20 (Rev. 3/05) Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7156

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 140 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 140 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25E

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	140
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	142	0.0
and boring decommissioned		
with 5.3 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
92 - 94 ft bgs;		
126 - 128 ft bgs;		
140 - 142 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7156		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 08/27/09 Completed Date 09/02/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/03/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) 7187A

☐ New well ☐ Reconditioned *Method* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 24 ft

Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.

☐ Liner installed ____" Diam. from ____ ft. to ____ ft.

☒ Threaded 2.5" Diam. From 0 ft. to 24 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 SE 1/4 Sec 12 Twn 12N R 25

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	24
Borehole was drove vertical. Refusal contacted.		
The tubing was back-pulled and boring decommissioned with 0.8 cu ft bentonite crumbles.	24	0.0
Reference: Variance for Direct Push Borings, dated 03/11/09		
NOTE 1: This boring is C7187A located on the Hanford Site, (SX Tank Farm).		

Start Date 05/22/09 Completed Date 05/22/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/12/09

ECY 050-1-20 (Rev 3-05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) 7170A

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 60 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 60 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25 EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	60
Borehole was drove vertical. Refusal contacted.		
The tubing was back-pulled and boring decommissioned with 2.1 cu ft bentonite crumbles.	60	0.0
Reference: Variance for Direct Push Borings, dated 03/11/09		
NOTE 1: This boring is C7170A located on the Hanford Site, (SX Tank Farm).		

Start Date 06/23/09 Completed Date 07/02/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David E. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/12/09

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission ("x" in circle)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) 7185A

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 24 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 24 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~PUMP: Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

~~WATER LEVELS: Land-surface elevation above mean sea level ____ ft.~~

~~Static level ____ ft. below top of well Date N/A~~

~~Artesian pressure ____ lbs. per square inch Date ____~~

~~Artesian water is controlled by ____ (cap, valve, etc.)~~

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 SE 1/4 Sec 12 Twn 12N R 25

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	52
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
Fill in tubing.		
The tubing was back-pulled	52	0.0
and boring decommissioned		
with 1.7 cu ft bentonite		
crumbles.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09		
NOTE 1: This boring is C7185A		
located on the Hanford Site,		
.(SX Tank Farm).		

Start Date 07/08/09 Completed Date 07/09/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David C. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/12/09

ECY 050-1-20 (Rev. 3/05)

Ecology is an Equal Opportunity Employer

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) 7192A

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 117 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.6" Diam. From 0 ft. to 117 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

~~**PUMP:** Manufacturer's Name ____~~

~~Type: ____ H.P. ____~~

WATER LEVELS: ~~Land-surface elevation above mean sea level ____ ft.~~

~~Static level ____ ft. below top of well Date ____~~ N/A

~~Artesian pressure ____ lbs. per square inch Date ____~~

~~Artesian water is controlled by ____ (cap, valve, etc.)~~

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 SE 1/4 Sec 12 Twn 12N R 25 EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation. Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a	0	117.7
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
Sample obtained at 100 to		
102 ft bgs. Broke pipe.		
The tubing was back-pulled	117.7	0.0
and boring decommissioned		
with 13 gal bentonite		
crumbles and 3.7 gal cement		
slurry.		
NOTE: Tubing separated at 7.7		
ft bgs. Three attempts were		
made to fish out the tubing		
with no result. Tubing left		
in boring from 117.7 ft to		
7.7 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09		
NOTE 1: This boring is C7192A		
located on the Hanford Site,		
(SX Tank Farm).		

Start Date 07/08/09 Completed Date 08/27/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David C Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/12/09

ECY 050-1-20 (Rev 3/95)

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WATER WELL REPORT

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ECOLOGY

Construction/Decommission (*"x" in circle*)

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number A118512

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) 7154A

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.1 inches, drilled 93 ft. Depth of completed well N/A ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft. ☐ Liner installed ____" Diam. from ____ ft. to ____ ft. ☒ Threaded 2.6" Diam. From 0 ft. to 93 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perf's ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface-elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date N/A

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal. min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal. min. with ____ ft. drawdown after ____ hrs.

Airtest gal. min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. S27649

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 SE1/4 Sec 12 Twn 12N R 25

EWM ☒ Or WWM ☐

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Casing was drove utilizing a hydraulic hammer unit mounted on a backhoe.	0	93.0
Borehole was drove vertical.		
Sample obtained at 74 to 76 ft bgs. Broke pipe.		
The tubing was back-pulled and boring decommissioned with 26 gal bentonite crumbles.	93.0	0.0
NOTE: Tubing separated at 58.7 ft.		
Reference: Variance for Direct Push Borings, dated 03/11/09		
NOTE 1: This boring is C7154A located on the Hanford Site, (SX Tank Farm).		

Start Date 07/08/09 Completed Date 08/27/09

Tax Parcel No. N/A

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller Engineer Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David C. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 09/12/09

ECY 050-1-20 (Rev 3/05)

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APPENDIX G

SAFETY DOCUMENTATION

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ENERGYSOLUTIONS	**ACTIVITY HAZARD ANALYSIS** **SX BARRIER DIRECT PUSH DEPLOYMENT HYDRAULIC HAMMER UNIT OPERATIONS**	AHA-09-001- REV. 2 WRPS

Prepared by:	Robert Zane	Signature:	Date:	
Supervisor:	Mike Walkup	Signature:	Date:	
Reviewed by:	Kent Reynolds	Signature:	Date:	
Reviewed by:	Mike Powers	Signature:	Date:	

EVERY WORKER MUST UNDERSTAND THE HAZARDS ASSOCIATED WITH THIS ACTIVITY AND THE CORRECTIVE MEASURES TO BE TAKEN. IF YOU DO NOT UNDERSTAND ANY PORTION OF THIS AHA OR HAVE ENCOUNTERED CONDITIONS THAT HAVE NOT BEEN ADDRESSED ADEQUATELY, STOP AND DO NOT PROCEED UNTIL YOU HAVE CONTACTED YOUR SUPERVISOR.

Scope/Description: The Hydraulic Hammer Unit (HHU) is a tractor with a boom mounted hydraulic impact/rotation hammer that will be used to push pipe into the ground for soil sample collection, geophysical logging, and resistivity probe placement at desired depths. This work is to support installation of a temporary barrier over SX Farm and will be performed with tank farm work packages TFC-WO-09-1001 "SX Direct Push Equipment Setup" and TFC-WO-09-0945 "SX Farm Direct Push".

Specific Work Location(s): Hanford, 200 West Area, inside and outside of SX-Farm.

Minimum PPE Requirements: Safety glasses with side-shields and protective footwear shall be worn in all work areas or as indicated in the body of this AHA.

Activity Tasks:

1. Push casing to desired depth or refusal.
2. Perform geophysical logging for subsurface characterization and to determine sample collection points.
3. Collect samples from desired depths.
4. Place resistivity probes in the boreholes at the investigative sites, if requested.
5. Decommission the boreholes and provide secure surface seal.

Topic	Yes	No	Topic	Yes	No
Radiation Work Area	X		Respiratory Hazards		X
Hazardous Waste Operations	X		Noise Exposure	X	
Confined Space		X	Temperature Extremes	X	
Hot Work	X		Hoisting & Rigging	X	
Roof Work		X	Repetitive Motion	X	
Fall Hazard (≥ 6 ft)		X	Awkward Positions	X	
Excavation/Trenching	X		Same Position(s)	X	
Ladders and/or Scaffolding	X		Biological/Vermin	X	
Aerial Lifts		X	Insects/Varmints	X	
Heavy Equipment	X		Signs and Barricades	X	
Lock and Tag	X		Utility Survey required	X	
Site/Vehicle Traffic	X		Explosive Operations		X
Electrical Hazards	X		Asbestos Work		X
Lead Work		X	Other Chemical Hazards	X	
Hazardous Materials/MSDS	X				

SPECIFIC HAZARD AND SAFE WORK REQUIRMENTS

Known and/or potential hazards, including any marked "yes" above, are further evaluated, and specific measures are identified on subsequent pages. This discussion must include identification of the work activity, the specific hazards present, and the safe work requirements/controls (including a hazards assessment/modification for PPE) to be used to alleviate/control the hazard(s).

Work Activity	Hazards Present	Required Safety Measures/PPE
General Site Activities	Fall hazards – slip/trip/fall	Walking and working surfaces: • Be aware of cobbles and irregular walking surfaces when traversing the site. • Keep work areas picked up of tools and equipment. • Clean up spills or mark the area with safety barricades until the spill can be cleaned up. Ladders: • Use ANSI approved ladders rated for heavy-duty or extra-heavy-duty use (Type I or Type IA). • Inspect ladder prior for defects prior to use. • Verify that periodic inspection was performed within last 12 months by competent person.
	Chemical Use	• Maintain an MSDS at the jobsite for all stored/used chemicals. • Personnel shall review the MSDS prior to working with any chemicals. • Personnel shall follow controls specified in MSDS or contact site safety representative for additional guidance.
	Spills	• Plastic sheeting and felt shall be placed beneath equipment that has the potential for leakage of fluids. • An adequate inventory of spill cleanup equipment and materials shall be maintained on site. The spill kit should contain shovels (or be available on location), absorbents, containers, plastic bags, and wipes. • Spills shall be reported to the customer and management immediately.
	Equipment Use	Motorized Equipment: • Shall be maintained as required by the manufacturer. • Shall be inspected daily and documented on appropriate forms (e.g. Field Activity Report, Work Package, Equipment Inspection Forms, etc.). • Equipment needing repair shall be removed from service, unless the supervisor determines it is safe to operate. Forklifts/Rigging: • Forklifts shall be inspected prior to use each shift and the results documented on appropriate form. (e.g. Field Activity Report, Work Package, Equipment Inspection Forms, etc.). • Forklifts and "Below the Hook Lifting Devices" used onsite shall meet the requirements of DOE-RL-92-36 "Hoisting and Rigging Manual" (HRSM).

	Remote Work Area	• Know the location of your work site and be able to describe its location to emergency responders. • If emergency responders are called, send someone to the entry intersections of the site access road and main roadway to direct responders to the site. • A cell phone must be onsite for contacting emergency responders. • Employees who could reasonably anticipate coming in contact with blood or other potentially infectious materials shall meet training and medical requirements of TFC-ESHQ-S-STD-24, REV A-4 (Bloodborne Pathogen Exposure Control Standard). • Maintain a fully stocked first aid kit in accordance with TFC-ESHQ-S-STD-04. • At least one individual on site shall have First Aid/CPR training.
	Emergencies	Fire: • Maintain at least two (2) ABC 20 pound fire extinguishers on site and place within work location for easy access. • Employees should attempt to extinguish incipient stage fires only if they have been trained in the use of fire extinguishers. • Call HFD at **373-3800**. • Evacuate upwind to a safe distance and account for all site personnel and visitors. • The *Hanford Fire Dept. must be notified of all fires even if they have been extinguished.* Injuries: • For minor injuries, transport injured person to the 200 West Medical Aid Station, 2719-WB Bldg or an in town medical facility. • For serious or life threatening injuries, call **373-3800** and administer first aid as indicated by the nature of the injury until emergency medical services arrive. • All injuries are to be immediately reported to the field supervisor and site safety representative. Emergency Evacuation: • All personnel shall respond to Emergency Area alarms by safely securing operations, exiting work area, and taking appropriate emergency response actions, per HGET and radiological training.
	Radiological Hazards	• All employees shall comply with the requirements defined in the client's radiological policies and procedure and the radiological work permit (RWP).

	Site Control Measures – Unplanned Entry	Signs/Barricades • The work area shall be posted "Authorized Personnel Only" and controlled to prevent inadvertent entry by non-project personnel. If unathorized personnel enter the controlled area, stop work until they have been escorted out. Training Requirements: • All support, supervisory personnel and visitors entering the site shall read and acknowledge this site safety plan at their initial entry as well as comply with all tank farm entry requirements, including training. • Any revision of this safety plan requires re-reading and re-acknowledgement of the plan by all personnel.
	Inadequate Lighting	• If work is performed during non-daylight hours, set-up lighting to provide a minimum illumination of 5-foot candles in work area.
	Temperature Extremes	Heat Stress: • Brief personnel on symptom recognition and methods of prevention. Use weekly safety meeting to document personnel have been briefed. • Provide drinking water and encourage consumption. • Confer with project safety representative to determine applicable column to follow on work/rest regimen table from TFC-ESHQ-S_IH-C-07. • Monitor WBGT temperatures using HMS or jobsite monitoring. • Provide shade and/or evaporative cooling (fan mounted misters) as needed in the work area. • Provide cool down area for breaks. Cold Stress: • Brief personnel on symptom recognition and methods of prevention. Use weekly safety meeting to document personnel have been briefed. • Provide drinking water and encourage consumption. • Use portable heaters as needed in the work area. • Wear winter gear. • Allow employees to take warming breaks as needed.
	Adverse Weather Conditions	• Contact the weather station at 373-2716 for information about adverse weather conditions. • Upon receiving the lightning warning within 30 miles notice or observation of lightning in the area stop all work with elevated booms. • Wear googles when wind speeds are great enough to generate blowing dust

	Pressure Washing	• Wear face shield in addition to standard PPE.
	Transporting Equipment/Materials	• Secure from movement in all directions.
	Sanitation at work location	• Do not eat, drink, smoke, chew, or apply cosmetics in the work area unless specifically approved by the health and safety and radcon representatives. • Provide wash water and wash hands prior to consuming food or beverages. • Apprise work crew of the nearest toilet facility.
	Biological	• Watch for spiders when reaching into enclosed spaces. • Be careful when handling equipment that has rested on the ground. • If snakes are encountered, do not attempt to handle or molest them. Monitor the snake's whereabouts until it is safely away from the work site. If needed, call the Pest Control (376-7378) to have the snake removed. • Watch for nesting bees and report to pest control. Employees with allergies should notify the supervisor. • Report all bites and stings.
	Vehicle Traffic	• For scope performed outside of the tank farm, place reflective barricades outside of controlled area around equipment when set-up in a path normally used by vehicles. When working at C7153 (approximately 15 ft. from roadway) • Place road signs (men working) approximately 200 ft before work area on the right side of the road for each direction of approach. • Place reflective barricades at the work area boundary for each direction of approach. • Wear reflective vests or shirts in work area. • If a vehicle stops within the high noise area during casing advancement, stop until the vehicle moves beyond the high noise area.
	Underground Utilities	• Obtain an excavation permit prior to conducting push activities. U-Dig (800-424-5555) shall be notified 48 hours prior to excavation to allow time for response by utility companies.
	Overhead Power Lines	• Vehicle boom/mast must be a minimum of 10 ft. away from power lines. • When working within a horizontal distance 20 feet of the center line of the nearest high voltage line, contact Electrical Utilities 372-1660 or 373-7995 for assistance at least 48 hours before the scheduled work. • Avoid moving equipment underneath overhead electric lines or near power poles, when feasible. • Use a spotter to verify 10 ft separation is maintained during set-up/demobilization of C7157.

	Hazardous Energy	• Prior to performing maintenance that removes guards or exposes the worker to a hazardous energy, secure the source then lock and tag.
	Hot Work	• Obtain a hot work permit from tank farms prior to performing hot work.
	Sharp Edges	• Wear leather gloves when using tools or handling equipment.
	Compressed Gas	• Secure nitrogen cylinder in cart with cap on, when moving. • Store out of direct sunlight.
	Portable Generator	• Ensure that generator is listed by an NRTL (nationally recognized testing laboratory). • Operate in accordance with manufacturer's instructions. • Test GFCI circuit before use.
Moving the tractor and equipment to the designated probe placement location.	Mobile Equipment	• Employees shall perform 360 degree walk-around to ensure that no obstacles are in the path of the vehicle. • Use a spotter when moving equipment inside the tank farm, when in confined areas, or near objects that are not readily visible. • Due to top-heavy design of the HHU, be cautious when on hills and avoid side-hilling. • Only personnel shall operate equipment (tractor, forklifts, etc.). • Be aware of moving equipment and always make contact with operator before approaching operating equipment. • Forklift operators shall ensure that the load is secured, stable and does not exceed the rated capacity. • Sound horn whenever blind spots exist. • Be familiar with the locations of overhead hazards. • Wear hard hats and protective toed shoes when working around forklift, tractor, or elevated objects that could fall.
	Equipment Noise	• Personnel shall wear hearing protection, with a minimum NRR of 18, when driving the tractor.
	Falling off tractor	• Employees shall use a three point contact when ascending/descending the tractor.
	Pinch Points	• Wear leather or equivalent work gloves when handling equipment. • Be aware of where you place your hands and feet. • Ensure that equipment with rotating type pinch points are guarded while in operation.
	Unstable Surface	• When setting the outriggers (if equipped) up the operator shall ensure that employees are staged away from the tractor. • Cribbing shall be used whenever there is a potential for the surface to give way. Size of cribbing shall be determined by soil density, weight of vehicle, etc. (Consult the

		manufacturer's recommendations, work package requirements, tank farm engineering, etc.).
	Moving Equipment	• Only trained personnel shall operate the drive unit. • Personnel working in close proximity to the hydraulic hammer unit shall be briefed on the moving parts and hazards. • Personnel shall make contact with the driller before approaching the drive unit. • Wear hard hat within 15 ft of the HHU when it is in operation.
Driving Casing/Sampling	Pipe Wrenches	• When pulling/pushing, keep the back as straight as possible. • Use a steady pull/push during removal/installing pipe. • Ensure that wrenches are in good working condition (clean, jaws not worn, etc.) • Only approved equipment may be utilized to make up and break out push tubing. Use of a "cheater" bar is not allowed
	Awkward Posture/Same Position	• Take breaks as needed to avoid muscle strain/fatigue. • Avoid prolonged still positions.
	Equipment Noise (HHU)	• Post the work area with warning signs that state "hearing protection required when equipment is operating". • Wear hearing protection with a minimum NRR of 18 when the motor(s) on the HHU, HHUXL, or portable generators are running. Driving Casing: • Wear ear plugs with a minimum NRR of 30 and ear muffs. • When driving utilizing the HHU, set up a boundary 50 ft. from the drill head. • When driving utilizing the HHUXL, set up a boundary 100 ft. from the drill head.
	Unexpected Odor	• Move up wind and contact safety/industrial hygiene and radiological personnel to evaluate.
	Perched Water	• Wear 4 mil nitrile gloves in addition to standard PPE when sampling in perched water or saturated zones.
Decommissioning of the borehole	Bentonite/Silica Sand Dust	• Wash hands and face prior to eating, drinking smoking, applying cosmetics, or using the restroom. • A N100 (particulate type) dust mask may be worn for comfort.
	Mixing and Pouring Cement	• Avoid creating dust when pouring dry material into bucket and when mixing. • Wear safety glasses and impervious gloves. If there is a splash potential, wear additional impervious PPE to prevent skin contact (such as face shield, boots, etc.). • Promptly wash skin that comes in contact with cement powder or wet cement.

Monitoring Requirements:
Radiological and chemical monitoring will be conducted and controlled by WRPS personnel; results will be available from the assigned Radiological Control Technician/Industrial Hygiene Technician.

HANFORD SITE EMERGENCY SERVICES

Patrol Operations Center - POC (any type of phone) **373-3800**
(contact the POC immediately for fire, injuries, or any type of accident)

Patrol Operations Center (landline only) **911**

EMERGENCY MEDICAL SERVICES

Name	Address	Phone #
Hanford, 200 West	2719 WB	373-2714
Advanced Med	1979 Snyder	376-6981/376-3333
Kadlec Medical Center	888 Swift Blvd	946-4611

ENERGY SOLUTIONS MANAGEMENT

Name	Office Phone #	Cell Phone #
Field Team Lead / Dave Skoglie	375-9591	308-0136
Safety Representative / Rob Zane	375-9585	308-6404
Technical Lead / Kent Reynolds	375-9598	308-3000

TANK FARMS CONTACTS

Name	Office Phone #	Cell Phone #
Tank Farms Shift Manager	372-2806 / 373-3475	
WFO/BED	373-2689	
FWS / Bill Clark		539-0949
Harold Sydnor	373-3967	438-1307
Mike Powers (Safety)	376-5597	308-7386

***ENERGYSOLUTIONS* ACTIVITY HAZARD ANALYSIS ACKNOWLEDGEMENT**

AHA-09-001-Rev. 1 WRPS

HYDRAULIC HAMMER UNIT

I have read, understand and agree to abide by the provisions detailed in this Activity Hazard Analysis. I understand that failure to comply with the provisions may lead to disciplinary action and my removal from this job activity.

PRINT NAME	SIGNATURE	EMPLOYEE NO.	DATE

ENERGYSOLUTIONS

Date: 04/28/09 Time: 1100 Location: SX Farm	Inspectors: Zane
Activity: Logging	Report #: WRPS-RWZ-09-002

TOPIC	Yes	No	N/A
Daily Inspections			
Daily inspections are performed and documented.			X
Weekly safety meetings are conducted and documented.	X		
Signs, Signals and Barricades			
Hazard signs posted, such as noise, PPE, chemical	X		
Radiological signs posted (where required).	X		
Hearing protection signs posted (where required).	X		
Industrial Hygiene			
Heat/cold stress – issues.			X
Illumination is adequate.			X
Dust control measures are adequate.			X
Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate.		X	
Vermin/Insects	X		
Hazard Communication Program			
An MSDS is located at the workplace and is accessible.			X
The MSDS is updated and legible.			X
Containers are labeled.			X
A list of hazardous materials is available; quantities included if required.			X
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.			X
Personal Protective Equipment			
PPE is provided for all employees.	X		
PPE is properly maintained and used.	X		
Hard hats are worn.			X
Approved safety glasses are worn.	X		
Proper foot protection is worn.	X		
Proper work clothing is worn.	X		
Respirator program is implemented as required.			X
Hearing protection is worn, when required.			X
Radiation Protection			
All radiation areas are posted and legible.	X		
A valid RWP is available covering the scope of work currently performed.	X		
Radiation monitoring coverage meets the RWP requirements.			X
Proper PPE is used.	X		
Fire Protection			
Exits are marked and clear of obstacles.	X		
Fire extinguishers are provided and have documented monthly inspections.			X
Flammable/combustibles are stored in approved containers.	X		
Approved containers are properly stored.	X		

Page 1 of 2

Temporary heaters are located away from combustibles or flammables			X
Tools			
PPE is used as required.	X		
Hand tools kept in good condition.	X		
Electrical tools are in a safe configuration.	X		
Jaws of pipe wrenches are free of dirt buildup, pipe dope or grease, which can cause the wrench to slip.			X
Electrical			
All electrical installations are in a safe configuration.	X		
GFCI's are used on temporary circuits.	X		
GFCI's are used on all portable electrical hand-held tools.	X		
Cords are protected from damage.	X		
Equipment is grounded as required.			X
Lockout/tagout practices are followed.			X
Extension cords are not "daisy-chained".			X
Heavy Equipment			
Operators are trained to operate heavy equipment.			X
Monthly inspections on equipment are documented.			X
All heavy equipment is inspected daily by the operator.			X
Overhead utilities are protected or removed when required.			X
A fire extinguisher is in the cab.			X
Hearing protection is worn, when required.			X
Seatbelts are worn.			X
Defective equipment is tagged and not used.			X
Housekeeping			
Walkways, corridors, and work areas in general are kept clear of material and debris.	X		
At the end of each shift, a general cleanup of all work areas is performed.	X		
Cords and hose used are stored and maintained properly.	X		
Lunch areas are clean and sanitary.	X		
Vehicles free of debris and maintained in a sanitary condition.			X
Solid waste and recycling containers are closed and secured.	X		
Material Handling and Storage			
Material is stored properly.	X		
Proper lifting techniques are observed.	X		
Pipe and well casings are not stored higher than 5 ft.			X

COMMENTS:

Those sections marked with N/A were not being conducted or applicable during the inspection.

The support area is in great condition except for the port-o-let which appears to have been tipped during a wind storm some time in the past. The interior is unsanitary and the door is damaged. According to supervisory personnel this had been reported to the vendor previously but action has not been taken. The vendor was notified at time of visit and the situation will be monitored until remedied.

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ENERGYSOLUTIONS

Date: 07/14/09 Time: 0930 Location: SX Farm	Inspectors: Zane
Activity: Walk Down of Borehole Locations Outside of Farm	Report #: WRPS-RWZ-09-005

TOPIC	Yes	No	N/A
Daily Inspections			
Daily inspections are performed and documented.			X
Weekly safety meetings are conducted and documented.	X		
Signs, Signals and Barricades			
Hazard signs posted, such as noise, PPE, chemical	X		
Radiological signs posted (where required).	X		
Hearing protection signs posted (where required).	X		
Industrial Hygiene			
Heat/cold stress – issues.			X
Illumination is adequate.			X
Dust control measures are adequate.			X
Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate.	X		
Vermin/Insects	X		
Hazard Communication Program			
An MSDS is located at the workplace and is accessible.			X
The MSDS is updated and legible.			X
Containers are labeled.			X
A list of hazardous materials is available; quantities included if required.			X
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.			X
Personal Protective Equipment			
PPE is provided for all employees.			X
PPE is properly maintained and used.			X
Hard hats are worn.			X
Approved safety glasses are worn.			X
Proper foot protection is worn.			X
Proper work clothing is worn.			X
Respirator program is implemented as required.			X
Hearing protection is worn, when required.			X
Radiation Protection			
All radiation areas are posted and legible.	X		
A valid RWP is available covering the scope of work currently performed.			X
Radiation monitoring coverage meets the RWP requirements.			X
Proper PPE is used.			X
Fire Protection			
Exits are marked and clear of obstacles.	X		
Fire extinguishers are provided and have documented monthly inspections.	X		
Flammable/combustibles are stored in approved containers.	X		
Approved containers are properly stored.	X		

Page 1 of 2

Temporary heaters are located away from combustibles or flammables			X
Tools			
PPE is used as required.			X
Hand tools kept in good condition.			X
Electrical tools are in a safe configuration.			X
Jaws of pipe wrenches are free of dirt buildup, pipe dope or grease, which can cause the wrench to slip.			X
Electrical			
All electrical installations are in a safe configuration.	X		
GFCI's are used on temporary circuits.			X
GFCI's are used on all portable electrical hand-held tools.			X
Cords are protected from damage.			X
Equipment is grounded as required.			X
Lockout/tagout practices are followed.			X
Extension cords are not "daisy-chained".			X
Heavy Equipment			
Operators are trained to operate heavy equipment.			X
Monthly inspections on equipment are documented.			X
All heavy equipment is inspected daily by the operator.			X
Overhead utilities are protected or removed when required.	X		
A fire extinguisher is in the cab.			X
Hearing protection is worn, when required.			X
Seatbelts are worn.			X
Defective equipment is tagged and not used.			X
Housekeeping			
Walkways, corridors, and work areas in general are kept clear of material and debris.	X		
At the end of each shift, a general cleanup of all work areas is performed.	X		
Cords and hose used are stored and maintained properly.	X		
Lunch areas are clean and sanitary.	X		
Vehicles free of debris and maintained in a sanitary condition.			X
Solid waste and recycling containers are closed and secured.	X		
Material Handling and Storage			
Material is stored properly.	X		
Proper lifting techniques are observed.	X		
Pipe and well casings are not stored higher than 5 ft.			X

COMMENTS:

Those sections marked with N/A were not being conducted or applicable during the inspection.

<u>Good Work Practice Observed</u>

I was contacted by both the ES Field Work Supervisor and the WRPS Technical POC to help evaluate planned push locations outside of the farm because overhead power lines and the roadway were in close proximity. The overhead lines were within 20' horizontal plane of C7153 (~18') and additional lower cables were about 10' away. We contacted Electrical Utilities and had a lineman come assist with the evaluation. The overhead power lines were 13.8KV and require maintaining a 10' separation which will not be an issue for either of the HHU units because the power line is 30' above ground level, 18' horizontally from borehole location, and the highest mast height is 18' above ground level. The lower cables are for communication and less than 50V so a separation distance is not required. Additional controls will be added to the AHA for working near a roadway. This is a good work practice in that project personnel recognized a potential hazard and requested evaluation before proceeding.

ENERGYSOLUTIONS

Date: 07/28/09 Time: 1000 Location: SX Farm	Inspectors: R. Zane
Activity: Fishing and Logging	Report #: WRPS-RWZ-09-007

TOPIC	Yes	No	N/A
Daily Inspections			
Daily inspections are performed and documented.	X		
Weekly safety meetings are conducted and documented.	X		
Signs, Signals and Barricades			
Hazard signs posted, such as noise, PPE, chemical	X		
Radiological signs posted (where required).	X		
Hearing protection signs posted (where required).	X		
Industrial Hygiene			
Heat/cold stress – issues.	X		
Illumination is adequate.	X		
Dust control measures are adequate.	X		
Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate.	X		
Vermin/Insects	X		
Hazard Communication Program			
An MSDS is located at the workplace and is accessible.			X
The MSDS is updated and legible.			X
Containers are labeled.			X
A list of hazardous materials is available; quantities included if required.			X
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.			X
Personal Protective Equipment			
PPE is provided for all employees.	X		
PPE is properly maintained and used.	X		
Hard hats are worn.	X		
Approved safety glasses are worn.	X		
Proper foot protection is worn.	X		
Proper work clothing is worn.	X		
Respirator program is implemented as required.			X
Hearing protection is worn, when required.	X		
Radiation Protection			
All radiation areas are posted and legible.	X		
A valid RWP is available covering the scope of work currently performed.	X		
Radiation monitoring coverage meets the RWP requirements.	X		
Proper PPE is used.	X		
Fire Protection			
Exits are marked and clear of obstacles.	X		
Fire extinguishers are provided and have documented monthly inspections.	X		
Flammable/combustibles are stored in approved containers.	X		
Approved containers are properly stored.	X		

Page 1 of 2

Temporary heaters are located away from combustibles or flammables			X
Tools			
PPE is used as required.	X		
Hand tools kept in good condition.	X		
Electrical tools are in a safe configuration.	X		
Jaws of pipe wrenches are free of dirt buildup, pipe dope or grease, which can cause the wrench to slip.	X		
Electrical			
All electrical installations are in a safe configuration.	X		
GFCI's are used on temporary circuits.	X		
GFCI's are used on all portable electrical hand-held tools.	X		
Cords are protected from damage.	X		
Equipment is grounded as required.	X		
Lockout/tagout practices are followed.	X		
Extension cords are not "daisy-chained".	X		
Heavy Equipment			
Operators are trained to operate heavy equipment.	X		
Monthly inspections on equipment are documented.	X		
All heavy equipment is inspected daily by the operator.	X		
Overhead utilities are protected or removed when required.	X		
A fire extinguisher is in the cab.	X		
Hearing protection is worn, when required.	X		
Seatbelts are worn.			X
Defective equipment is tagged and not used.			X
Housekeeping			
Walkways, corridors, and work areas in general are kept clear of material and debris.	X		
At the end of each shift, a general cleanup of all work areas is performed.	X		
Cords and hose used are stored and maintained properly.	X		
Lunch areas are clean and sanitary.	X		
Vehicles free of debris and maintained in a sanitary condition.			X
Solid waste and recycling containers are closed and secured.	X		
Material Handling and Storage			
Material is stored properly.	X		
Proper lifting techniques are observed.	X		
Pipe and well casings are not stored higher than 5 ft.	X		

COMMENTS:

Those sections marked with N/A were not being conducted or applicable during the inspection.

Page 2 of 2

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part I: Background Information

Title: Completion Report for 241 -SX Tank Farm Direct Push Barrier Characterization

Information Category:
- ☐ Abstract ☐ Journal Article ☐ Summary
- ☐ Internet ☐ Visual Aid ☐ Software
- ☐ Full Paper ☑ Report ☐ Other

Publish to OSTI? ☐ Yes ☑ No

Trademark/Copyright "Right to Use" Information or Permission Documentation	Yes	NA
	☐	☑

Document Number: RPP-43548 Revision 0 Date: December 2009

Author: Tabor, Cindy L

Part II: External/Public Presentation Information

Conference Name:

Sponsoring Organization(s): WRPS

Date of Conference: Conference Location:

Will Material be Handed Out? ☐ Yes ☑ No Will Information be Published? ☐ Yes ☑ No *(If Yes, attach copy of Conference format instructions/guidance.)*

Part III: WRPS Document Originator Checklist

Description	*Yes*	*N/A*	*Print/Sign/Date*
Information Product meets requirements in TFC-BSM-AD-C-01?	☐	☑	
Document Release Criteria in TFC-ENG-DESIGN-C-25 completed? (Attach checklist)	☐	☑	
If product contains pictures, safety review completed?	☑	☐	Roberts, Sheryl K Approved - IDMS data file att.

Part IV: WRPS Internal Review

Function	*Organization*	*Date*	*Print Name/Signature/Date*
Subject Matter Expert	WRPS	04/15/2020	Tabor, Cindy L Approved - IDMS data file att.
Responsible Manager	WRPS	04/09/2020	Rutland, Paul L Approved - IDMS data file att.
Other:			

Part V: IRM Clearance Services Review

Description	*Yes*	*No*	*Print Name/Signature*
Document Contains Classified Information?	☐	☒	If Answer is "Yes," ADC Approval Required Print Name/Signature/Date
Document Contains Information Restricted by DOE Operational Security Guidelines?	☐	☒	Reviewer Signature: Print Name/Signature/Date
Document is Subject to Release Restrictions? *If the answer is "Yes," please mark category at right and describe limitation or responsible organization below:*	☐	☒	Document contains: ☐ Applied Technology ☐ Protected CRADA ☐ Personal/Private ☐ Export Controlled ☐ Proprietary ☐ Procurement – Sensitive ☐ Patentable Info. ☐ OUO ☐ Predecisional Info. ☐ UCNI ☐ Restricted by Operational Security Guidelines ☐ Other (Specify)
Additional Comments from Information Clearance Specialist Review?	☐	☒	Information Clearance Specialist Approval APPROVED By Sarah Harrison at 10:32 am, Apr 21, 2020 Print Name/Signature/Date

When IRM Clearance Review is Complete – Return to WRPS Originator for Final Signature Routing (Part VI)

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part VI: Final Review and Approvals

Description	*Approved for Release*		*Print Name/Signature*
	Yes	*N/A*	
WRPS External Affairs	☒	☐	McKenna, Mark Approved - IDMS data file att.
WRPS Office of Chief Counsel	☒	☐	Peters, Amber D Approved - IDMS data file att.
DOE – ORP Public Affairs/Communications	☒	☐	Levardi, Yvonne M / Tyree, Geoff T Approved - IDMS data file att.
Other: ORP OCC	☒	☐	Zelen, Benjamin J Approved - IDMS data file att.
Other: ORP SME	☒	☐	Blackwell, Becky Approved - IDMS data file att.

Comments Required for WRPS-Indicate Purpose of Document:

This report is a summary of direct push activities relating to interim barrier characterization at 241-SX Tank Farm.

APPROVED
By Sarah Harrison at 10:32 am, Apr 21, 2020

Approved for Public Release; Further Dissemination Unlimited

Information Release Station

Was/Is Information Product Approved for Release? ☒ Yes ☐ No

If Yes, what is the Level of Releaser? ☑ Public/Unrestricted ☐ Other (Specify) _____

Date Information Product Stamped/Marked for Release: 04/21/2002

Was/Is Information Product Transferred to OSTI? ☐ Yes ☒ No

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- <workflow name="(SEH) Expedite - RPP-43548 Rev0" id="260316913">
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      <comments>Due Thursday April 23rd 2020 - COB Please expedite the approval of
        the Completion Report for 241-SX Tank Farm Direct Push Barrier
        Characterization submitted by Cindy Tabor for public release to Ecology. Thank
        you, Sarah Harrison Information Clearance</comments>
    </task>
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