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Completion Report for Single-Shell Tank 241-C-103 Direct Push Soil Investigation

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Abstract: This report is a summary of direct push activities relating to phase 2 characterization at two sites near single-shell tank C-103.

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COMPLETION REPORT FOR SINGLE-SHELL TANK 241-C-103 DIRECT PUSH SOIL INVESTIGATION

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

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TERMS

Energy*Solutions*	Energy*Solutions* Federal Services, Inc.
ID	inside diameter
OD	outside diameter
RPP	River Protection Project
WAC	*Washington Administrative Code*
DOW	Description of Work
WRPS	Washington River Protection Solutions

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COMPLETION REPORT FOR SINGLE-SHELL TANK 241-C-103 DIRECT PUSH SOIL INVESTIGATION

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 near tank 241-C-103 at C Tank Farm located in 200 East 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-028, *Description of Work: Phase 2 Soil Characterization Near Single-Shell Tank 241-C-103*, Rev. 0 (see Appendix A) provides a detailed description of the scope of work to be 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-028, *Description of Work: Phase 2 Soil Characterization Near Single-Shell Tank 241-C-103*, 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 241-C-103, Phase 2
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

During the month of June, FSWO-DOW-028, Rev. 0 was prepared and submitted. The description of work provides detailed work instructions and information for conducting characterization efforts inside the 241-C Tank Farm near tank 241-C-103 and Building C-801. A hydraulic hammer unit was used for placing two exploration boreholes to refusal, or a target depth of 61.57 meters (202 feet) below ground surface for geophysical

logging. An additional location was identified in the Description of Work (DOW) but was not used.

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. Borehole C7465 displayed presence of Cs-137 from 1.77 meters (5.8 feet) to surface, with a maximum concentration of 53 pCi/g at 0.15 meters (0.5 feet). Borehole C7467 displayed Cs-137 from .61 meters (2.0 feet) to 0.15 meters (0.5 feet), with the maximum concentration of 5.5 pCi/g at 0.30 meters (1 foot). Detailed results from these logging efforts are provided in Appendix D. Offset boreholes (C7466 and C7468) were then pushed for sampling purposes. Sample locations were chosen by the Vadose Project Technical Point of Contact and were based on previous geophysical logging data from boreholes C7465 and C7467. Sampling information is provided in Table 1 and Appendix E.

The hydraulic hammer unit and associated personnel initially began mobilization and site setup June 29, 2009. They commenced pushing their first borehole for this task July 8, 2009. The work scope was completed August 18, 2009, with demobilization commencing the following day. With mobilization and demobilization, there were 34 field days that the hydraulic hammer unit and crew were dedicated to the 241-C-103 tank activities. There were 84.25 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-028, 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 (OD) x 4.45 centimeter (1.75-inch) inside diameter (ID) 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 depths were selected. At both 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) OD x 4.76 centimeter (1.875-inch) ID outer sample barrel, which holds a 4.13 centimeter (1.625-inch) OD x 48.63 centimeter (18.75-inch)-long inner sample barrel. The inner sample barrel houses three 3.18 centimeter (1.25-inch) OD 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). Overall sample recovery from both boreholes was 94.55 percent. Table 1 shows locations, intervals, sample numbers and percent of sample recovered. For sample chain of custody forms and logbook entries, refer to Appendix E.

Table 1. Sample Intervals.

Borehole Number	Depth In Feet	Sample Number	Percent Recovery
C7466	NA	B21733	Trip Blank
	Surface	B211X8, B211X9, B215K8	100%
	Surface	B211Y0, B215K9, B21731	100%
	5.0-7.0	B20XW6, B20XW7 & B20XW8	100%
	10.0-12.0	B20XW9, B20XX0 & B20XX1	44%
	14.0-16.0	B20XX2, B20XX3 & B20XX4	80%
	NA	B21734	Trip Blank
	43.5-45.5	B20XX5, B20XX6 & B20XX7	100%
	NA	B1YY17	Equipment Blank
	NA	B21735	Trip Blank
	84.0-86.0	B211W3, B211W4 & B211W5	100%
	109.5-111.5	B211W6, B211W7 & B211W8	100%
	NA	B21736	Trip Blank
	114.0-116.0	B211W9, B211X0 & B211X1	100%
	133.0-135.0	B211X2, B211X3 & B211X4	100%

Table 1. Sample Intervals.

Borehole Number	Depth In Feet	Sample Number	Percent Recovery
C7468	NA	B21737	Trip Blank
	Surface	B21220, B21221 & B215L0	100%
	Surface	B21222, B21732 & B215L1	100%
	NA	B21738	Trip Blank
	5.0-7.0	B211Y3, B211Y4 & B211Y5	100%
	10.0-12.0	B211Y6, B211Y7 & B211Y8	67%
	14.0-16.0	B211Y9, B21200 & B21201	100%
	NA	B21739	Trip Blank
	43.5-45.5	B21202, B21203 & B21204	100%
	NA	B21740	Trip Blank
	92.0-94.0	B21205, B21206 & B21207	100%
	97.0-99.0	B21208, B21209 & B21210	100%
	NA	B21741	Trip Blank
	125.0-127.0	B21211, B21212 & B21213	100%
	135.0-137.0	B21214, B21215 & B21216	100%

Samples were obtained and analyzed in accordance with WRPS Sample Authorization Forms #V09-002 and #V09-003. Samples were analyzed for volatile organics, semi-volatile organics, metals, anions, sulfides, pH, radioisotopes and several other analytes.

The sample tip, drive head, sample liners, and inner sample barrel were cleaned by the 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. 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-028, 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 successful 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 tank in the vicinity. The coordinates, elevations and a map showing completed push locations/boreholes are provided in Appendix B.

3.4 GEOPHYSICAL LOGGING

Pacific Northwest Geophysics and Three Rivers Scientific conducted the geophysical logging data collection and analysis services on the two 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. Results from logging showed that both boreholes (C7465 and C7467) had the highest radiological activity near the 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. Both logging boreholes (C7465 and C7467) were decommissioned while resistivity probes were placed. This was done by knocking the drive tip out of the bottom of the tubing, and back pulling the tubing as it was filled 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.

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

Table 2 shows both 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
C7465 Logging	136559.0	575211.4	197.669	202.00	135 ft and 86 ft
C7466 Sampling	136559.2	575212.0	197.630	135.00	NA
C7467 Logging	136563.0	575222.6	197.492	174.00	126 ft and 46 ft
C7468 Sampling	136563.3	575223.1	197.423	137.00	NA

5.0 ENVIRONMENTAL, SAFETY AND HEALTH

During the 241-C 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.

APPENDIX A

FSWO-DOW-028 *DESCRIPTION OF WORK: PHASE 2 SOIL CHARACTERIZATION NEAR SINGLE-SHELL TANK 241-C-103,* REV. 0

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FSWO-DOW-028
Revision 0

DESCRIPTION OF WORK: PHASE 2 SOIL CHARACTERIZATION NEAR SINGLE-SHELL TANK 241-C-103

K. D. Reynolds

June 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-C Tank Farm Aerial Photo. 3
Figure 2. 241-C-103 and Building C-801 Area. 6

TABLES

Table 1. Coordinates for Two Exploration Direct Push Locations and One Potential Additional Location (L1). 8

TERMS

bgs	below ground surface
CH2M HILL	CH2M HILL Hanford Group, Inc.
DOE	U.S. Department of Energy
DOW	description of work
Energy*Solutions*	Energy*Solutions* Federal Services, Inc., Northwest Operations
ES&H	Environmental, Safety, and Health
ID	inside diameter
OD	outside diameter
PUREX	Plutonium-Uranium Extraction (Plant)
RCRA	*Resource Conservation and Recovery Act of 1976*
RPP	River Protection Project
SGE	surface geophysical exploration
SST	single-shell tank
WAC	*Washington Administrative Code*
Well ID	Well identification
WMA	Waste Management Area
WRPS	Washington River Protection Solutions, LLC

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DESCRIPTION OF WORK: PHASE 2 SOIL CHARACTERIZATION NEAR SINGLE-SHELL TANK 241-C-103

1.0 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The U.S. Department of Energy (DOE) Office of River Protection and the Washington State Department of Ecology (the regulator for *Resource Conservation and Recovery Act of 1976* [RCRA] treatment, storage, and disposal facilities) have agreed to create a RCRA Corrective Action Project with explicit milestones. These milestones are part of the *Hanford Federal Facility Agreement and Consent Order* (part of the M45 milestone series). 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 (RPP) Single-Shell Tank Program the tasks of transferring waste from the single-shell tanks (SST) 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 Waste Management Area's (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.

This Description of Work (DOW) describes the field work necessary to collect the data identified in RPP-Plan-39114, *RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area C*, Rev. 0, which is based on data quality objectives described in RPP-RPT-38152, *Data Quality Objectives Report Phase 2 Characterization for Waste Management Area C Corrective Measures Study*, and supports the Phase 2 RCRA facility investigation/corrective measures study work plan and sampling and analysis plan activities for the SST WMA C.

This work is being conducted at the direction of Washington River Protection Solutions, LLC (WRPS) Vadose Zone Characterization Group. This DOW provides the work instructions for conducting characterization/sampling efforts inside the 241-C Tank Farm near tank 241-C-103 and Building C-801. The scope of work includes: provide equipment and personnel to conduct direct push activities; support soil sample collection; provide safety oversight; provide global positioning survey support; provide geophysical logging services; attend meeting and planning sessions; and provide a written report documenting field activities and data collection at the conclusion of activities.

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. This DOW provides direction for field operations relative to characterization activities near single-shell tank 241-C-103 in C Tank Farm.

Since the Hanford Site started operating in the early 1940s, a large volume of information related to WMA C operations has been collected and evaluated. WMA C encompasses the C Farm located in the east central portion of the 200 East Area (Figure 1 and Figure 2) including soil and groundwater contaminated by C Farm operations. C Farm was constructed from 1944 to 1945, and began operations in the late 1940s. In general, the WMA C boundary is represented by the fence line surrounding the C Farm.

The C Farm contains twelve 100-series tanks and four 200-series tanks. The 100-series tanks are 23 m (75 ft) in diameter, have a 5 m (15-ft) operating depth, and have an operating capacity of 1,892,700 L (530,000 gal) each. The 200-series tanks are 6 m (20 ft) in diameter with a 7.32 m (24-ft) operating depth and an operating capacity of 208,000 L (55,000 gal) each. The tanks sit below grade with at least 2 m (7 ft) of soil cover that shields operating personnel from radiation exposure. Tank pits are located on top of the tanks and provide access to the tanks, pumps, and monitoring equipment.

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Figure 1. 241-C Tank Farm Aerial Photo.

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 moisture and gamma logs. Deepest targeted sample depths will be determined by review of the geophysical data and the total depth achieved by the initial exploratory push. Initially eight investigative sites were outlined for exploratory push investigation and geophysical log data collection.

2.1 EXPLORATORY PROBEHOLES

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 *Washington Administrative Code* (WAC) 173-160, "Minimum Standards for Construction and Maintenance of Wells," requirements (e.g., filled with bentonite or bentonite/cement grout as required) as the push tubing is extracted. Restivity electrodes may be placed in the exploration probeholes during decommissioning at the direction of the WRPS Technical Lead. When these actions are taken, sand is placed around the sending/receiving segment of the electrode assembly and bentonite is

used for the remainder of the decommissioning process. Cement seals and surface protection will be placed to protect the wire leads at ground surface.

2.2 MULTIPLE SAMPLE PROBEHOLES

Sampling will be conducted with outer push tubing 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 system with a "dummy" tip will be advanced to the pre-determined sample depth. The tubing will be back-pulled 0.06 m (approximately 2 in.) to 0.12 m (approximately 5 in.) to relieve pressure from the drive shoe and tip.

When sampling depth is achieved and the rods back-pulled for sampling, the removable tip will be removed by extracting the inner rods. When the inner string of tubing has been removed, a sampler will be attached to the inner string and returned to the bottom of the outer casing/push tubing and positioned against the inner receiver face of the drive shoe. The inner and outer tubing strings are "locked" together by use of a proprietary method, and the entire assembly is advanced through the targeted sample interval.

The sampler body holds three stainless steel liners that are 3.17 cm (1.25 in.) OD x 2.7 cm (1.08 in.) ID. After the sampler is advanced approximately 0.6 m (2 ft) the inner string is released and retrieved to surface. The liners are removed from the sampler body and surveyed. Trained sample-handling technicians document recovery, sample condition, and volume recovery percent; then they package and transport the sample to the selected laboratory for analysis. The "dummy" tip is reattached to the inner string and returned to bottom and placed in the casing shoe, and the entire assembly is advanced to the next designated sample depth. 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.

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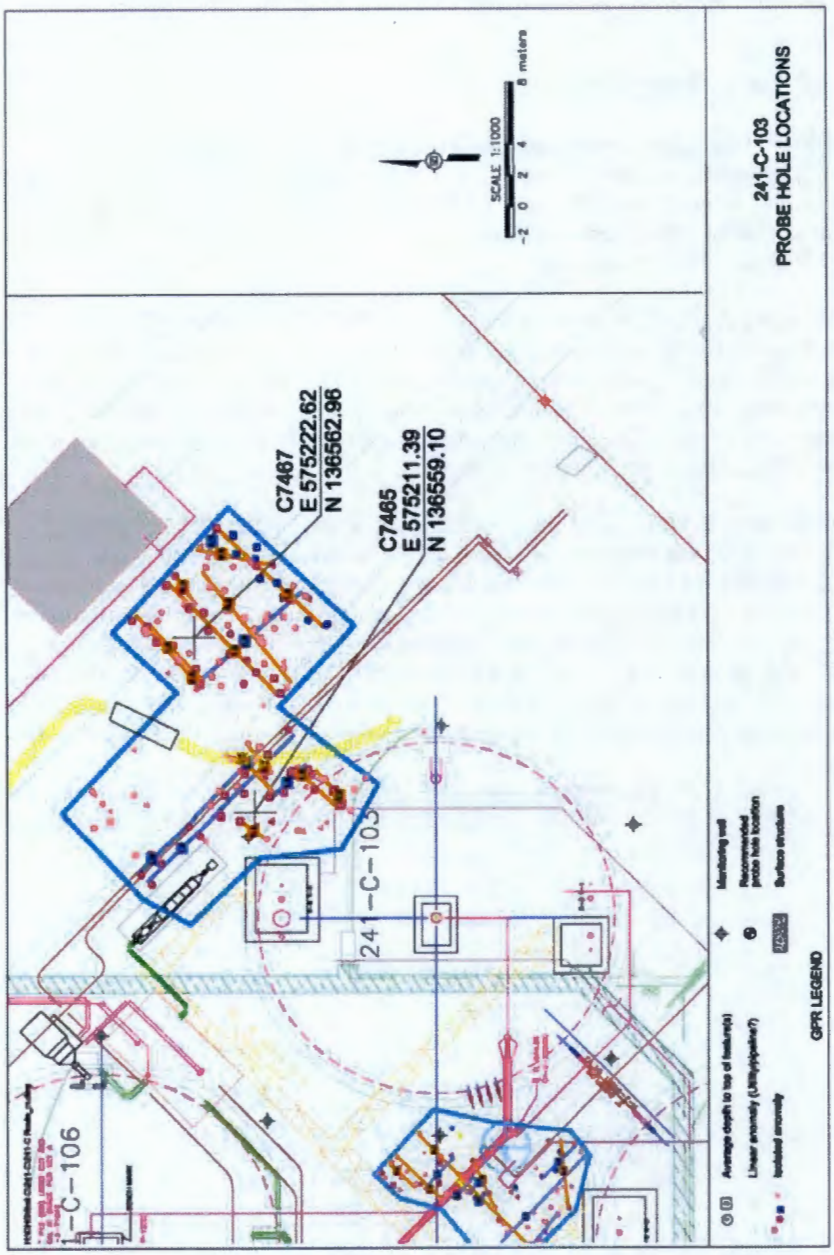
Figure 2. 241-C-103 and Building C-801 Area.



3.0 PUSH LOCATIONS

3.1 PUSH LOCATION DOCUMENTATION

Figure 2 above is a location map of the area adjacent to 241-C-103 and the Building C-801 area in the 241 C Tank Farm. Two specific push locations are also identified in Figure 2 (C7465 and C7467). One additional location may be operated under this DOW (currently designated as site L 1). It is located on the southwest side of 241-C-103 and is designated in the general area of the planed location by a circle divided into four quadrants (light blue circle). An appropriate well number will be applied if the option to locate a push in this area is exercised. 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 C 7465] the Well ID of the subsequent sampling push is C 7466). The unique Well ID numbers for all of the original push locations are listed, and unique sample push Well ID numbers have been assigned and reserved for use during the 241-C-103/Building C-801 investigation by the Hanford Site Well Coordinator. All sampling and the single exploration push will be documented in the field activity reports and sampling chain of custody forms and located by use of global positioning survey equipment.

Table 1. Coordinates for Two Exploration Direct Push Locations and One Potential Additional Location (L1).

Probehole Number	Northing	Easting
L 1	136548.54	575188.16
C 7465	136559.10	575211.39
C 7467	136562.96	575222.62

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 2 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 consists of placement of felt and 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 erroneous. 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 Technical Point of Contact (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 seconds/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 @ 15 seconds/0.25 ft.

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 sampler will be placed in a transportation drum and opened under controlled conditions at the designated laboratory.

5.2 CLEANING

Quality control requires that all materials (e.g., sample liners, material retaining baskets [finger baskets], sample caps) used for the performance of 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 probeholes. 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.

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-C-103/Building C-801 investigation and 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-09-004, C-103 Direct Push Hydraulic Hammer Unit Operations, Rev. 1, or most current revision) is included as a portion of the WRPS Tank Farm Work Package.

Both Energy*Solutions* Safety personnel and WRPS Tank Farm Industrial Hygiene and Safety personnel 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/construction activities to ensure compliance with the guidance outlined in the Activity Hazard Analysis. Weekly inspection reports will be provided to the WRPS Technical Point of Contact (Harold Sydnor).

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 comprehensive list of WRPS, DOE and Hanford Site-specific procedures and requirements for conducting work within the confines of the C 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.

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-09-004, *C-103 Direct Push Hydraulic Hammer Unit Operations*, Rev. 1, Energy*Solutions* Technical Services, Richland, Washington.

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

DOE/RL-98-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*

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.

RPP-Plan-39114, *RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area C*, CH2M Hill Hanford Group, Inc., Richland, Washington.

RPP-RPT-38152, *Data Quality Objectives Report Phase 2 Characterization for Waste Management Area C Corrective Measures Study*, CH2M Hill Hanford Group, Inc., Richland, Washington.

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

APPENDIX B

GLOBAL POSITIONING SYSTEM COORDINATES AND MAP

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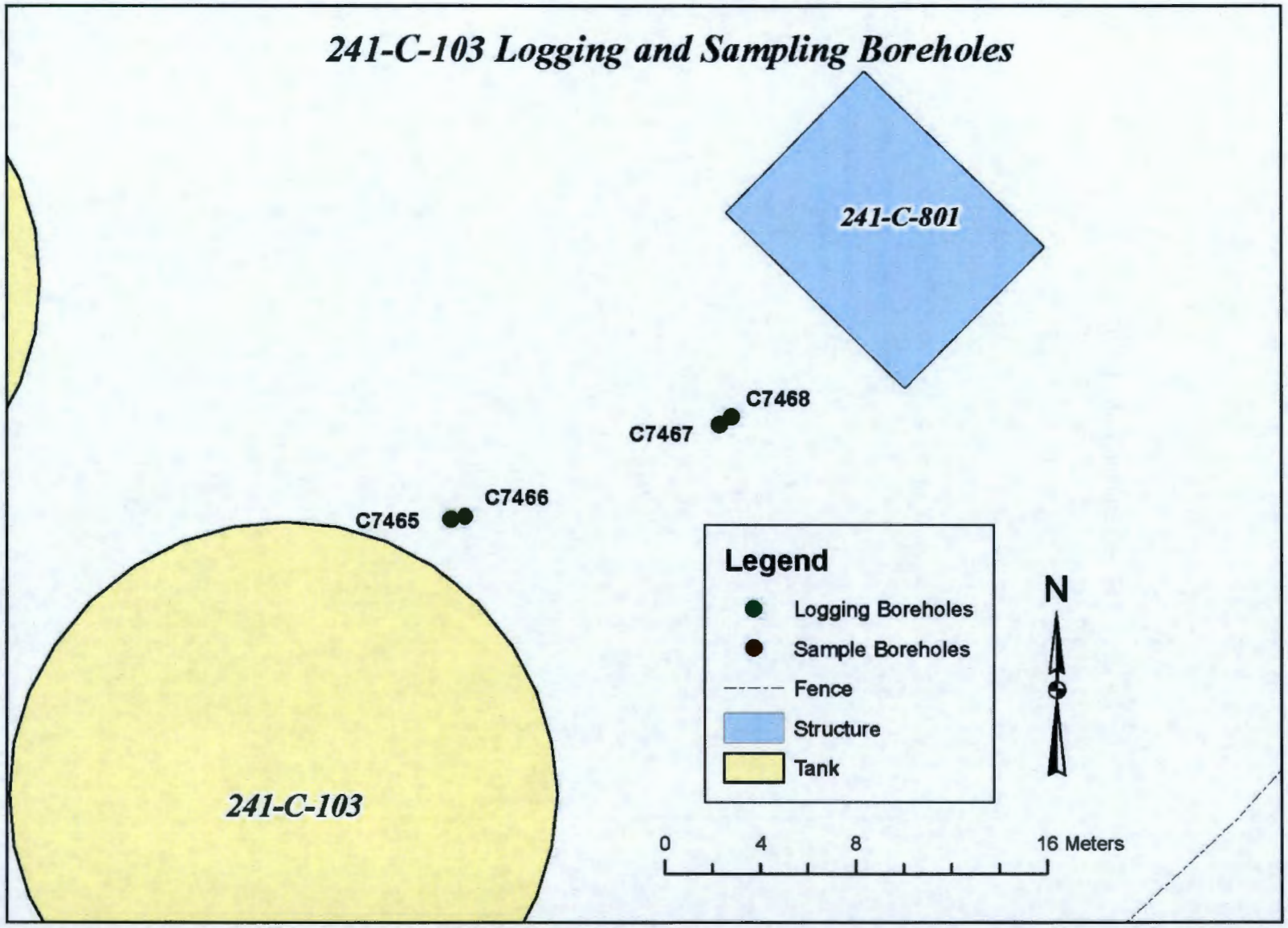
241-C-103 Logging and Sampling Boreholes
241-C-801
C7468
C7467
C7466
C7465
241-C-103
Legend
Logging Boreholes
Sample Boreholes
Fence
Structure
Tank
N
0
4
8
16 Meters

Name	Northing	Easting	Elevation	Feature Cc	Description	Layer	Point Style	Horizontal Quality
C7465	136559	575211.4	197.669			Default	<By Layer>	Survey quality
C7466	136559.2	575212	197.63			Default	<By Layer>	Survey quality
C7467	136563	575222.6	197.492			Default	<By Layer>	Survey quality
C7468	136563.3	575223.1	197.423			Default	<By Layer>	Survey quality

APPENDIX C

DRILLING AND SAMPLING DAILY WORK RECORDS

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ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Rig Maintenance		**DATE:** 6/29/09
LOCATION: Hanford Site, C Tank Farm	**EXCAVATION:** DAN-3675 **U-DIG #:** 9156222	**REPORT #:** 1
START CARD NO. AE06418	**DECOMMISSION NO.** SE04981	**RWP:** CO-460 AHA-09-004 Rev 0

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 #_____ 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
0530	Safety Meeting at E.S.F.S. Plan of Day.
0540	Drive to C tank Farm.
0620	HHU maintenance. Change hydraulic filter on #1 CAT.
0700	On standby for set-up package - No HPT support (used @ SX Farm).
0730	Went to SX tank farm and picked up 2-2½ drive tips - silicmed).
0745	Identification tags were made @ Rigging loft for SX farm.
0930	Travel to C tank farm.
0945	Travel to chemical storage, pickup oil filter, oil and drain pan.
1030	Inspected rotation and feed with new controller.
11:00	Lunch
11:30	Changed oil in HHU Rig #1 - remove bent bracket for breakout wrench.
12:30	Return oil change equipment to chem storage.
13:30	Drove to Energy NW and dispensed oil in drum.
14:00	cleaned out equipment / used hoses @ Energy NW.
14:30	secure site. 1500 hrs
	N/A

OPERATOR/LICENSE: Repko 3012*
ES SUPPORT: Ohin Amos
NCO: Villareal, Snook
HPT: N/A
FWS: Clark

WEATHER: 89 F Sunny

DOWNTIME: 9 hr - HPT support

DISCARDED ITEMS: Oil change HHU #1 Case

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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:** 6/30/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Mob HHU to staging Area **DATE:** 6/30/09

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 2

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 AHA-09-004 Rev 0

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 # _____ 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
0530	Safety meeting C office. Discuss work scope.
0540	Drive to C tank farm.
0610	Standby for setup package.
0930	Conduct route of entry walk down with B. Clark.
1000	Mob HHU Rig#10 to staging area for entry.
1030	Lunch
11:00	Dress in SWPs and enter C tank farm.
11:15	Clean 2½ drill tubing, inspect inner tubing. cleaned 170 ft of 2½ tubing
1415	Exit C tank farm. (site secured). 1500

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: O. Amos
NCO: Villareal, Snook
HPT: P. Templeton
FWS: B. Clark

WEATHER: 88 F Sunny

DOWNTIME: 3½ set-up package

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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:** 6/30/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Move HHU Rig #1 into farm

SHIFT FOOTAGE: N/A	LOCATION: C TANK FARM	DATE/RPT #: 7-1-09 / 3
START CARD NO. AE06418	DECOMMISSION NO. SE04981	RWP: CO-001 Rev. 14 AHA: 09-004-Rev 0
GEOPHYSICAL LOGGING	DAN- 3675 /U-DIG NO. 9156222	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring #	Interval:	Type
N/A		

BOREHOLE SUMMARY END OF SHIFT

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

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

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

SAMPLING SUMMARY

Sample #	Interval	% Recovery
N/A		

TIME	WORK SUMMARY
0630	Safety meeting at E.S.E.S.
0600	Drive to C Tank Farm., P.O.D meeting, Planning of rig location.
0700	Dress in farm
0715	Cleaned 2½" drill pipe threads with wire brush (60'). Total 2½" for C farm = 232'
0830	moved equipment for drilling to drilling location on #C 7465.
0900	Took a break for water.
0915	Went in with Mike Dorsey to GPS hole #6403.
0930	moved in HHU Rig #1 on hole #C 7465, mike Dorsey GPS both locations C7465 and C7467. Drillpipe still needs to be moved to location, Electrical not setup.
1130	Had lunch break.
1200	Drive to E.S.E.S. (Standby for Work Package.)
1500	Standby for Work package
	N/A

OPERATOR/LICENSE: Mark Repko #3012 PERSONNEL: Bill Clark, Olin Ambs, Scott Snook, Izzy Villarreal, Paul Templeton, Mike Dorsey	WEATHER/DOWNTIME: 90° F	DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 / 36472 TASK 6

REPORT BY: Mark A. Repko	REVIEWED BY: D.E. Skoglie
TITLE: TEAM COGNIZANT PERSON	TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Mark A. Repko	SIGNATURE: David E. Skoglie 07/01/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Setup to begin pushing on C7465

SHIFT FOOTAGE: -0- LOCATION: C TANK FARM DATE/RPT #: 07-06-09/4

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: C0460 R5 AHA:

GEOPHYSICAL LOGGING DAN- 3675 /U-DIG NO. 9156222 HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # -0- Interval: -0- Type -0-

BOREHOLE SUMMARY END OF SHIFT

Borehole # -0- Tubing (-0-) @ -0- ft bgs; S.U. -0-

Borehole # -0- Tubing (-0-) @ -0- ft bgs; S.U. -0-

Borehole # -0- Tubing (-0-) @ -0- ft bgs; S.U. -0-

SAMPLING SUMMARY

Sample # Interval % Recovery

TIME	WORK SUMMARY
0600	On site waiting for package to show (work package)
0945	Package on site waiting for all team members to hold prejob.
1010	Prejob for C7465 and C7467
1130	lunch
1200	waiting for final sign off's on work package documents (RWP, AHA, TH) and NEC inspection
1330	Head to SX Farm to fill in for Mike Passy, Still waiting on package
1500	End shift

Summary for 07-02-09:

NO EnergySolutions personel on site. Operators and support personel moved the Rudy cart and Generator to new location at Lower C-Farm. (waiting on package sign off)

OPERATOR/LICENSE:
PERSONNEL: Olin Amos, Dave Skoglie

WEATHER/DOWNTIME: 80°F, 9 hrs.

DISCARDED ITEMS: -0-

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev 0 / 36472 TASK 6

REPORT BY: Olin Amos
TITLE: TEAM COGNIZANT PERSON
SIGNATURE: Olin Amos

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie 07/07/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Setup on C746S To Push 2½" Rods To 200'

SHIFT FOOTAGE: -0- | LOCATION: C TANK FARM | DATE/RPT #: 07/07/09 #5

START CARD NO. AE06418 | DECOMMISSION NO. SE04981 | RWP: C0460 Rev. 6 AHA: 09-004-Rev0

GEOPHYSICAL LOGGING | DAN- 3675 /U-DIG NO. 9156222 | HHU CASE#1 HHU CAT #2 HHUXL#3

Boring #	Interval:	Type
-0-	-0-	-0-

BOREHOLE SUMMARY END OF SHIFT

Borehole # C746S Tubing (2½) @ -0- ft bgs; S.U. -0-

Borehole # -0- Tubing (–) @ -0- ft bgs; S.U. -0-

Borehole # -0- Tubing (–) @ -0- ft bgs; S.U. -0-

SAMPLING SUMMARY

Sample #	Interval	% Recovery
-0-	-0-	-0-

TIME	WORK SUMMARY
0530	Safety meeting, Head to site
0610	On site have prejob. MATT from IH discussed Tank vapor Sampling and heat stress.
0700	Enter Zone and move 2½ and 2⅝ rods to site. Also move Sambaccs and equipments. Set up Zone barriers.
0900	Exit Farm and standby for NEC inspection on Generator.
1100	lunch
1130	waiting for NEC inspection to be completed
1430	Head to office inspection was not completed today
1500	End of shift

N/A

OPERATOR/LICENSE:
PERSONNEL: Olin Amos, Mark Repko

WEATHER/DOWNTIME: 87°F
5 hrs. Downtime

DISCARDED ITEMS: -0-

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev 0 / 36472 TASK 6

REPORT BY: Olin Amos
TITLE: TEAM COGNIZANT PERSON
SIGNATURE: D.E. Skoglie for

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Skoglie 7/08/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drilling on C 7465

SHIFT FOOTAGE: 88' bgs	**LOCATION:** C TANK FARM	**DATE/RPT #:** 7-8-09 / ~~7~~ 6
START CARD NO. AE06418	**DECOMMISSION NO.** SE04981	**RWP:** CO-460 R5 AHA-09-004 R0
GEOPHYSICAL LOGGING	**DAN-** 3675 **/U-DIG NO.** 9156222	**HHU** (CASE#1) **HHU CAT #2** **HHUXL#3**

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

N/A

BOREHOLE SUMMARY

Borehole # C7465 Tubing (2 ½) @ -0 to 88 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	Safety meeting at E.S.E.S. Safety topic: Pinch Points.
0600	Drive to SX Farm.
0605	Talked about using generators, The NEC inspection to be done this morning.
0610	Checked out new brushes on 2 5/8, 2½ pipe. They work good.
0615	Drive to C Tank Farm waiting for write off of NEC inspection. Pre-Job.
0800	Move Flammable storage close to work location
0815	Dress in whites.
0830	Clean work area, inspect winch cable (ok), Finished setting up 50' rope boundary.
0900	Standbye for NEC sign off.
1100	Lunch
1130	Standbye for HPT, Electrical Inspection complete.
1200	Enter in Farm (Dressing in whites.
1215	Start drilling on C 7465. Drilled to 88' bgs
0215	Exit C Tank Farm, Washed up
0230	Drive to E.S.E.S.
0300	End of shift.
	N/A

OPERATOR/LICENSE: Mark Repko #3612 **PERSONNEL:** Mark Repko, Alin Ames, Paul Templeton, Bill Clark, Scott Snook	**WEATHER/DOWNTIME:** 82° F 4.5 hrs.	**DISCARDED ITEMS:** 2-2½ Drill rods

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 / 36472 TASK 6

REPORT BY: Mark A. Repko	**REVIEWED BY:** D.E. Skoglie
TITLE: Operator	**TITLE:** ES TECHNICAL REVIEWER
SIGNATURE: Mark A. Repko	**SIGNATURE:** Daniel E. Skoglie 7/9/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 7-8-09 HHU#: Rig #1 Hour Meter: 3019 Operator mark 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:

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

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drilling on C 7465

SHIFT FOOTAGE: 80'	**LOCATION:** C TANK FARM	**DATE/RPT #:** 7-9-09 / #8 7 07/09/09
START CARD NO. AE06418	**DECOMMISSION NO.** SE04981	**RWP:** CO-460 R5 AHA-09-004 R0
GEOPHYSICAL LOGGING	**DAN-** 3675 **/U-DIG NO.** 9156222	**HHU** (CASE#1) **HHU CAT #2** **HHUXL#3**

Boring #	**Interval:**	**Type**
N/A		

BOREHOLE SUMMARY

Borehole #C7465 Tubing (2½) @ 88' to 168' 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	Safety meeting E.S. F.S. Safety Topic:
0545	Drive to C-Tank Farm.
0615	Arrive at C-Tank Farm. (Standbye for pre-job brief.
0630	Work Package accived (standbye for pre-job) conduct pre-job.
0700	Dress in whites. Inspected rig.
0735	C7465 - Began pushing thru 88' bgs.
0818	Break to let the head cool.
0850	Resume pushing on C7465
0920	Break to let the head cool. Exited farm.
1015	Resume pushing on C7465
1050	Break to let head cool. At 143.8' bgs
1124	Resumed push. Extremely hard driving.
1145	Break for lunch. Heads hot. C7465 @ 150.0' bgs. Ball bearing screw backed out.
1215	Gather parts + tools + re-enter farm.
1310	Adapter repaired. Commenced driving.
1415	End of shift. 4½ rod = 168' + 2.3' = 170.3' − 2.3' SU = 168' dtb.

N/A

OPERATOR/LICENSE: Mark Repko R3012 Olin Amos Steffler **PERSONNEL:** Scott Snook, Paul Templeton	**WEATHER/DOWNTIME:** 85° F	**DISCARDED ITEMS:** 1- washer (Retainer washer)

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 / 36472 TASK 6

REPORT BY: Mark A. Repko	**REVIEWED BY:** D. F. Skoglie
TITLE: operator	**TITLE:** ES TECHNICAL REVIEWER
SIGNATURE: Mark A. Repko	**SIGNATURE:** David F. Skoglie 7/09/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 7-9-09 HHU#: Rig #1 case Hour Meter: 3022 Operator Mark Repke Olin Amos

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:

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

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Continue pushing 2.5" at #C7465 \ BEGIN PUSHING 2.5" AT #C7467

SHIFT FOOTAGE: 94.0'	**LOCATION:** C TANK FARM	**DATE/RPT #:** 07/10/09 Report #08
START CARD NO. AE06418	**DECOMMISSION NO.** SE04981	**RWP:** CO-460 R5 AHA-09-004 R0
GEOPHYSICAL LOGGING	**DAN-** 3675 **/U-DIG NO.** 9156222	**HHU** CASE#1 **HHU CAT #2** **HHUXL#3**

Boring #	Interval:	Type
N/A	N/A	N/A

BOREHOLE SUMMARY

Borehole # C7465 Tubing (2 1/2") @ 168' to 202 ft bgs; S.U. 2.5'

Borehole # C7467 Tubing (2 1/2") @ 6.5 to 60 ft bgs; S.U. 2.0'

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: SLEEP DEPRIVATION.
0540	TRAVELED TO SMURF TO ACE. TRAVELED TO "C" FARM.
0620	STANDBY FOR HRT'S.
0630	PRE-JOB AT "C" FARM.
0650	DRESS AND ENTER FARM. INSPECT CASE HHU #1. NO PROBLEMS NOTED.
0800	DROVE 2.5" ROD FROM 168.0' BGS TO 196.0' BGS. STICKED TWO TIMES
—	FOR ~ 20 MINUTES TO LET DRIVE HEAD AND CROSSOVER SUB. COOL.
—	EXITED FARM FOR BREAK.
0740	BREAK.
0900	DRESS AND ENTER FARM. DROVE 2.5" ROD FROM 196.0' BGS TO T.D. AT
—	202.0' BGS. DEPTH WAS VERIFIED WITH A TAG TAPE.
—	N/A
0945	MOVED CASE HHU #1 AND SUPPORT EQUIPMENT TO #C7467 AND SET-UP.
0930	DROVE 2.5" ROD FROM 6.5 TO 60.0' BGS. SECURED SITE FOR WEEKEND
—	AND EXITED FARM.
1100	LUNCH.
1130	TRAVEL TO OFFICE. COMPLETE TIMECARD.
1200	END OF SHIFT.
	N/A

OPERATOR/LICENSE: Walkup/#3005 **PERSONNEL:** Repko, Olson (ESFS), Snook (Operator), Clark (FWS) WEBBS - HRT	**WEATHER/DOWNTIME:** 91 F, sunny with winds 5-10 mph 10 MINS. - HRT'S	**DISCARDED ITEMS:** NONE

REFERENCE/CONTRACT INFORMATION: FSWD-DOW-028 Rev 0/ 36472 TASK 6

REPORT BY: MIKE WALKUP	**REVIEWED BY:** D.E. Skoglie
TITLE: STR	**TITLE:** ES TECHNICAL REVIEWER
SIGNATURE:	**SIGNATURE:** David E. Skoglie 07/13/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drilling on # ~~C7465~~ C7467 DEK 07/14/09 9 hr. Downtime

SHIFT FOOTAGE: -0-	LOCATION: C TANK FARM	DATE/RPT #: 7-13-09 ~~#10~~ DEK 7/14/09 #9
START CARD NO. AE06418	DECOMMISSION NO. SE04981	RWP: CO-460 R5 AHA-09-004 R0
GEOPHYSICAL LOGGING	DAN- 3675 /U-DIG NO. 9156222	HHU CASE#1 HHU CAT #2 HHUXL#3

Boring # Interval: Type

N/A

BOREHOLE SUMMARY

Borehole #C7465 Tubing (2½) @ 60' to N/A ft bgs; S.U. 2.3'

Borehole # -0- Tubing ( ) @ to ft bgs; S.U. -0-

Borehole # -0- Tubing ( ) @ to ft bgs; S.U. -0-

SAMPLING SUMMARY

Sample # Interval % Recovery

N/A

TIME	WORK SUMMARY
0530	Safety meeting E.S.F.S. Safety Topic: Wind & Blowing Debris.
0535	Drive to C-Tank Farm
0605	Arrived at C Tank Farm / Waiting for Pre job (Standbye)
0645	Work package arrived waiting for pre-job. / Generator not started.
0755	Down For AOP-21 Farm was evacuated. Bill is coming for Key & package (Standbye)
1130	Back going off AOP-21. Wind is above 20mph no excavation AOP-8 (Standbye)
0130	On AOP-8 Wind is too high to drill today. CAM alarm is going off in Tank Farm
—	no Geophysical Logging to be done today
0140	Driving to E.S.F.S.
0210	Back at E.S.F.S. paperwork
0300	End of Shift

N/A

OPERATOR/LICENSE: Mark A. Repko #3012 PERSONNEL: Olin Amos, Brent Rendall, Scott Snook, Paul Templeton Bill Clark	WEATHER/DOWNTIME: 79°F overcast Wind 10-20 Gusting to 35 / 9 hrs Down Time	DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev 0 / 36472 TASK 6

REPORT BY: Mark A. Repko	REVIEWED BY: D.E. Skoglie
TITLE: operator	TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Mark A. Repko	SIGNATURE: David E. Skoglie 7/14/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Drilling on #C7467 and Geophysical logging.

SHIFT FOOTAGE: 114'	**LOCATION:** C TANK FARM	**DATE/RPT #:** 7-14-09 #1D
START CARD NO. AE06418	**DECOMMISSION NO.** SE04981	**RWP:** CO-460 R5 AHA-09-004 R0
GEOPHYSICAL LOGGING	**DAN-** 3675 **/U-DIG NO.** 9156222	(HHU CASE#1) HHU CAT #2 HHUXL#3

Boring # **Interval:** **Type**
#C7465 202'-200

BOREHOLE SUMMARY
Borehole #C7467 Tubing (2") @ 60' to 174' ft bgs; S.U. 4.3'
Borehole # _____ Tubing ( ) @ N/A to ft bgs; S.U. ____
Borehole # _____ Tubing ( ) @ to ft bgs; S.U. ____

SAMPLING SUMMARY
Sample # Interval % Recovery
N/A

TIME	WORK SUMMARY
0520	Safety Meeting E.S.F.S Safety Topic: Turn lights on Dusk & Dawn
0535	Drive to C Tank Farm
0600	Arrived at C Tank Farm.
0630	Pre-Job at C Tank Farm Talked about work scope.
0635	Loaded Brents logging equipment to go in Farm for hole #C7465
0700	Dress in whites for work
0715	Rig Inspection / Inspection of Air Samplers by HPT.
0740	Start Drilling on #C7467 @ 60 ft bgs.
0822	Down to 84' bgs. Taking a break / Brent Entered Farm with equipment / Computer Crashed.
0848	Back to Drilling.
1009	Letting head cool down. Down to 132' bgs
1025	Back to Drilling.
1050	Letting head cool down. Down to 152' bgs
1100	Break For lunch
1130	Dress in whites for work
1142	Back to Drilling.
140	Drill string down to 174' bgs. Rods got tight at 174' bgs / Rod broke (unknown)
145	Exit Farm to make phone call. (Brent to start logging) He had equipment failure all day No logging activity. He fixed logging equipment. Will start tommorow.
230	Exit to E.S.F.S. C7467 is @ refusal.
	N/A

OPERATOR/LICENSE: Mark Repko #3012
PERSONNEL: Allen Amos, Brent Scott Snook, Paul Templeton, Bill Clark

WEATHER/DOWNTIME: 87°F Sunny

DISCARDED ITEMS: 15 Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev 0 / 36472 TASK 6

REPORT BY: Mark Repko
TITLE: operator
SIGNATURE: Mark A. Repko

REVIEWED BY: D.E. Sloglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E. Sloglie 7/15/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Run Camera in 2½ Rods to verify Broken Piece Log C7467 + C7465 **DATE:** 07-15-09

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 11

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 **AHA-**09-004 Rev 0

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 # C7467 Tubing (2½) @ 174 to 174 ft bgs; S.U. 3

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

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

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C7467	100	0.25m
2. C7465	002.5 151.5	SG
3.		

TIME	WORK SUMMARY
0530	At office and hold safety meeting, Disscussed working with crafts
0605	on site ~~at~~ C-Farm
0620	Hold prejob. Discussed running camera in pipe and logging hole.
0635	Head to cfarm to enter zone
0700	In Zone Rig up and run camera in to verify broken rod
0830	Rod appears to be broken at 167.70 Below ground surface, (168 feet below Top of Pipe). C7467.
0845	Exit Farm and wait for RCT to pull camera out of The hole.
0900	RCT + Brent on site. reenter Farm and help Brent get set up to Log C7467 and C7465. C7467 will be logged using the ~~Spectral Gamma~~ Moisture tool. C7465 will be logged using the ~~Moisture~~ Gamma tool. DES 7/16/09 DES 7/16/09
010	Out of Farm, Down waiting for logging to be Completed.
1100	lunch
1130	Waiting for logging
1430	Brent is out of zone. Area is above under Geophysical logging. Head to Office. logging will continue tommorow.
1500	End of Shift.

OPERATOR/LICENSE: AMOS #1224
ES SUPPORT: Olin, Mike passey, Dave
NCO: Scott
HPT: Bill, Paul
FWS: Bill (Brent - logging)

WEATHER: 100 F

DOWNTIME: N/A

DISCARDED ITEMS: NA

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Olin Amos
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Olin O. Amos

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E Skoglie **DATE:** 07/16/09

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ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Run Moisture and Spectra logging in C7467 + C7465 **DATE:** 7-16-09

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 12

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 **AHA-09-004 Rev 0**

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 # C7467 Tubing (2½) @ 174 to 174 ft bgs; S.U. .3

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

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

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C7467	173.5-100	M complete
2. C7465	151.5-93.5	SG
3.		

TIME	WORK SUMMARY
0530	AT office, Hold Safety meeting on healthy diet + Exercise
0610	on site at C Farm, Preject on logging + heat stress
0630	Brent + Paul head to get the source for logging
0730	Logging C7467 with Moisture and C7465 with Gamma.
1100	Lunch
1130	Logging continues
1430	End shift logging on C7467 was from 173.5'-100' moisture log complete.
	C7465 was from 151.5'-93.5' spectral Gamma
	Head to office
1500	End shift
	N/A

OPERATOR/LICENSE: AMOS #1224
ES SUPPORT: Olin, Passey, Brent
NCO: Scott Snook
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 95 F

DOWNTIME: N/A

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Olin Amos
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Lyle O. Amos

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: Spectral Gamma on C 7465

SHIFT FOOTAGE: N/A	LOCATION: C TANK FARM	DATE: 7-17-09	Report #: 13
START CARD NO. AE06418	DECOMMISSION NO. SE04981	RWP: CO-460 R6 AHA-09-004 R0	
GEOPHYSICAL LOGGING	DAN- 3675 /U-DIG NO. 9156222	HHU CASE#1 HHU CAT #2 HHUXL#3	

Boring #	Interval:	Type
C7465	93.5-32.5	S.G.

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. ____

SAMPLING SUMMARY

Sample #	Interval	% Recovery
N/A		

TIME	WORK SUMMARY
0530	Safety Meeting at E.S.F.S.
0545	Drive to C Tank Farm.
0615	Arrive at C Tank Farm.
0630	Pre-job with Bill Clark. Heat warning, Talked about pinch points.
0700	Brent to start Spectral Gamma on C 7465.
0705	Went to support Brent on logging.
9:30	Drove to SX Tank Farm to tape up probes, Grabber Sand, Bentonite.
11:30	Drive to C Farm unload equipment - Sand, Bentonite, probe.
1145	Drop off equipment - Sand, Bentonite, probe
1200	Lunch Break. Brent came out for Lunch
1230	Brent to Start back up, Dressing up in whites, entering Farm
115	Brent exited Farm for today.
120	Washed up and getting things Ready to go.
130	Drive to E.S.F.S. to fill out time card.
200	At E.S.F.S. End of shift
	N/A

OPERATOR/LICENSE: Mark Repko #3012

PERSONNEL: Bill Clark, Scott Snook, Brent Rundall,

WEATHER: 100+ °F Wind 5-15mph

DOWNTIME: 0

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028/36472 Task 6

REPORT BY: Mark A. Repko

TITLE: operator

SIGNATURE: Mark A. Repko

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie 7/20/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Geophysical logging #C7465, #C7467

SHIFT FOOTAGE: N/A	LOCATION: C TANK FARM	DATE: 7-20-09	Report #: 14
START CARD NO. AE06418	DECOMMISSION NO. SE04981	RWP: CO-460 R6 AHA-09-004 R0	
GEOPHYSICAL LOGGING	DAN- 3675 /U-DIG NO. 9156222	HHU CASE#1 HHU CAT #2 HHUXL#3	

Boring #	Interval:	Type:
C7465	38.5-0.5	S.G.
C7467	50.0-29.0	S.G.

BOREHOLE SUMMARY

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

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

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

N/A

SAMPLING SUMMARY

Sample #	Interval	% Recovery
N/A		

TIME	WORK SUMMARY
0530	Safety Meeting E.S.F.S. Safety Topic: Job-preparedness.
0545	Drive to C Tank Farm
0615	Arrived at C Tank Farm
0630	Unlock horse trailer / Await Pre Job.
0640	Pre job with Bill Clark. Work smart be aware of surroundings.
0700	Brent to start logging on #C7465 / Dressing in whites, going in Farm.
0830	Mike URIE (IH Tech) monitoring for Heat Stress come to discuss heat stress
0915	Brents equipment running (Brent out for water break)
1100	Brent to check logging in Farm / Dress in whites.
1130	Lunch
1200	Brent logging in Farm.
230	Brent exited C Tank Farm.
232	Drive to E.S.F.S.
300	End of Shift.

N/A

OPERATOR/LICENSE: Mark Repko #3012 PERSONNEL: Bill Clark, Brent Randall, Paul Templeton, Olin Amos, Bill Simpson	WEATHER: 96° F DOWNTIME: N/A	DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028/36472 Task 6

REPORT BY: Mark A. Repko	REVIEWED BY: D.E. Skoglie
TITLE: operator	TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Mark Repko	SIGNATURE: David Skoglie 7/21/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Geophysical Logging #C7465, #C7467 DATE: 7-21-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 15

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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

SAMPLING SUMMARY

Sample #'s	Interval	%
1.		
2.		
3.		
4.		

N/A

BOREHOLE SUMMARY

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

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

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

N/A

GEOPHYSICAL LOGGING

Boring #	Interval	Type
#C7465	202-80	M
#C7467	105-50	S.G.
3.		

TIME	WORK SUMMARY
0530	Safety Meeting at E.S.F.S.
0540	Drive to C Tank Farm.
0610	Arrive at C Tank Farm. Unlock horse Trailer.
0627	Package was here waiting for Pre-job. (Standby)
0700	Pre-job brieting. Safety Topic - Rodents, snakes, Scorpions.
0715	Brent to head over to dress up in whites. /Pick up Source.
0725	Paul came over to pick up Key for Farm.
0740	Brent to start Geophysical logging. Moisture on #C7465, Gamma #C7467
1200	Lunch (Brent exited Farm. Equipment still logging).
100	Brent to dress in whites and check equipment.
200	Brent exited zone. undressed whites. Return Source.
230	Drive to E.S.F.S.
300	End of shift/Timecards.

N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Ames
NCO: Bill Sampson
HPT: Paul Templeton, Bill Bernard
FWS: Bill Clark

WEATHER: 100° °F

DOWNTIME: .5 hr.

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 7/22/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Geophysical Logging on C7465, C7467 | DATE: 7-22-09

LOCATION: Hanford Site, C Tank Farm | EXCAVATION: DAN-3675 U-DIG #: 9156222 | REPORT #: 16

START CARD NO. AE06418 | DECOMMISSION NO. SE04981 | RWP: CO-460 AHA-09-004 Rev 0

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

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

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

GEOPHYSICAL LOGGING

Boring #	Interval	Type
1. C7465	80-0	m
2. C7467	29-0.5	S.G.
3. C7467	140-120	S.G.

TIME	WORK SUMMARY
530	Safety Meeting E.S.F.S. Safety Topic: Electrical Cord Inspection
0540	Drive to C Tank Farm.
0608	Arrived at C Tank Farm.
0609	Discussed moving Rig #1 out of way for Samplers to collect surface
—	Samples.
0615	Waiting for Pre-job with everyone (standbye)
0645	Pre-job with everyone. Talked about on the job injuries.
0700	Dress in whites and move Rig #1, Brent to continue logging.
0730	Cleaned threads on 2 5/8 drill string (188'). Put sampling string
—	together with dummy tip.
0930	Exited farm. Brent still logging in farm. Drive to trailer
0940	Take a water break.
0956	Brent taking break. Equipment logging in farm.
1010	Working on Knocker bar cable. Brent logging
1100	Lunch
1130	Brent to go in farm and check equipment.
215	Brent exited farm. Return source.
230	Drive to E.S.F.S.
300	End of Shift
	N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: Blan Windsor
HPT: Paul Templeton, Bill Bernard
FWS: Bill Clark

WEATHER: 100+ F HOT

DOWNTIME: .5hr

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 7/23/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Geophysical logging #C7467, Probe Installation #C7465

DATE: 7-23-09

LOCATION: Hanford Site, C Tank Farm

EXCAVATION: DAN-3675 U-DIG #: 9156222

REPORT #: 17

START CARD NO. AE06418

DECOMMISSION NO. SE04981

RWP: CO-460 AHA-09-004 Rev 0

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 # C7465 Tubing (2½) @ 202' to 132' 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. C7467	175'-140'	S.G
2. C7467	120'-105'	S.G
3.		

TIME	WORK SUMMARY
0530	Safety Meeting E.S.F.S. Safety Topic: Hot weather
0545	Drive to C Tank Farm.
0615	Arrive C Tank Farm.
0630	Prejob with everyone
0700	Support operators bringing Bentonite in farm. / Brent logging #C7467
0705	Standbye for direction on probe installation.
0865	Move HHU Rig on hole #C7465. Setup zone, move equipment on hole
0935	Pull one joint 2½ try Knock tip out.
0951	Knocked Expendable tip out of drill string at 196' bgs.
1010	Exit zone for a cool down break.
1030	Standbye for probe depth installation direction.
1100	Have direction on hole #C7465 to install probe at 135 bgs to 133' bgs.
1115	Dressin whites / back pull casing.
1130	Start back pulling casing @ 196' bgs. Pulled 44' casing added granular bentonite
—	(2) bags Casing at 156' bgs. Continue pulling casing back to 132' bgs
—	added 1½ bags bentonite to 137' bgs with granular then added sand (2) from
—	137' bgs - 135' bgs.
100	Exiting zone - dress on dress - Brent finished logging
105	Lunch
135	Drive to SX Farm to pick up 150' probe (N/A) everyone going to meeting at office.
145	Drive to office for meeting.
245	Arrive at office / Meeting for FAR worksheets, protocol
300	End of Shift. Timecard

OPERATOR/LICENSE: Mark Repko #3012

ES SUPPORT: Olin Amos, Brent Randall

NCO: Blair

HPT: Paul Templeton, Bill Barnard

FWS: Bill Clark

WEATHER: 100° F

DOWNTIME: 1.5 hr.

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Mark A. Repko

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Mark A. Repko

REVIEWED BY: D.E. Skoglund

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglund DATE: 7/23/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

Page 1 of 2

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Install moisture probes in #C7465 **DATE:** 7-27-09

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 18

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 **AHA-09-004 Rev 0**

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 # C7465 Tubing (2½) @ 132' to -0- ft bgs; S.U. N/A

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	Safety meeting at E.S.F.S. Safety Topic: Heat Stress.
0600	Drive to Sx Farm, pick up 150' probe.
0610	Drive to C Tank Farm
0625	Arrive at C Tank Farm
0630	ACES
0640	Standbye for Pre-job
0800	Pre-job with HPTS. Ready to go to work. / Brent to move equipment out of farm.
0810	Drop diesel by gate, probes. Enter C Tank Farm
0815	move Brent's equipment out of Farm
0830	Diesel in rig, equipment inspection.
0845	measure bottom of hole tagged at 135 bgs.
0852	Install first moisture probe at 135 bgs pulled 2 rods added sand to 130 bgs.
—	Added water salt solution
0925	Pulled 5 rods and taking a 15 minute break to let water evaporate - casing at 112' bgs
0945	Add bentonite to 114' bgs
0955	Pulled rods to 80' bgs and bentonite to 88' bgs then sand to 86' bgs.
1047	Took water break
1053	Installed 2nd moisture probe at 86' bgs, pulling 1 more rod.
1100	Added sand 5' to 81' bgs. adding water and salt solution. Casing is at 76' bgs
1115	Taking a Lunch Break. Dressing out.
1145	Dress in whites.
1215	Enter zone for work, setup fan by shade.
1230	Decommission rods back to g.s. with granular bentonite.
200	Exit zone, both probes installed, on a 50/50 work regiment.

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Mike Pussey
NCO: Izzy Villareal
HPT: Barnard
FWS: Bill Clark

WEATHER: 100 °F

DOWNTIME: 1 1/3 hour Pre-job

DISCARDED ITEMS:
1 - 150' probe wire
1 - 100' probe wire
11 - bags Granular bentonite

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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:** 7/28/09

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No	Continuation of Report No
7-27-09	C7465	#18

DESCRIPTION OF OPERATIONS/REMARKS

0215	Take a cool down break
0230	Drive to E.S.F.S.
0300	Arrive at E.S.F.S. End of shift, Time card.

N/A

Report By	Mark A. Lepko	Reviewed By	D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Review	Date	7/28/09
Signature	Mark A. Lepko	Signature	Dale E. Skoglie		

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Set moisture Probes in #C7467 DATE: 7-28-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 19

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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 # C7467 Tubing (2½) @ 163' to 114' 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	Safety meeting & S.F.S. Topic: Rigging
0540	Drive to C Tank Farm.
0610	Arrive at C Tank Farm.
0611	Standbye. For Pre-job.
0740	Pre-job with crew. Re-directed from sampling to probe installation.
0745	Drive to S pick up key for Greenhut storage. To pick up 150' probe, going
—	to get water for water salt solution.
0830	Driving to C Tank Farm.
0845	Arrive at C Tank Farm. Load Benonite, Salt.
0900	Dress in whites.
0915	Move Benonite and supplies into farm
0935	move equipment, Rig onto C #7467.
0950	Set up shade start working on C 7467
0955	Added 2' and tagged at ~~176.3~~ 173.7 total string
1010	pulled up 2' and tagged at ~~175.3~~ 173.7
1015	pulled up 4' and tagged again at ~~175.3~~ 173.7 That confirms broken pipe.
1024	continue decommissioning to 126'.
1057	Rods are at 118' bgs running a tag to 175.3. Bentonite to 128' bgs then Sand 126'
1115	Exit zone for Lunch Drive to Lunch Trailer
1130	Lunch break
1200	Discuss Heat Stress issues. Farm is on a 50/50.
1245	Drive to change trailer
1250	Dress in whites.
105	Enter Farm continue work.

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Mike Passey
NCO: Scott Snook, Izzy Villareal
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 100+ F
Hot, Farm on a 50/50 by noon.

DOWNTIME: 2.5 hr.

DISCARDED ITEMS:
2-50lb bags of Sand
1-150' moisture probe
3 bags bentonite

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 07/29/09

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No.	Continuation of Report No.
7-28-09	#C7467	#19

DESCRIPTION OF OPERATIONS/REMARKS

110	Tagged hole to make sure tag is good tagged at 126' bgs we
	pulled 1 more pipe to be on safe side pipe is at 114' bgs. We sanded
	up to 121' bgs. (5') above probe then added salt and water.
	Everyone on 45/15 work regiment. End of day in Farm.
130	Dress out of whites.
140	Drive up to C. Farm trailer / Standbye (Heat)
230	Drive to E.S.F.S. / Timecard
300	End of shift
	NOTE: Moisture probe is at @ 126 ft bgs.
	N/A

Report By	Mark A. Repko	Reviewed By	D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Rep	Date	7/29/09
Signature	Mark A Repko	Signature	David E Skoglie		

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 2

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Set moisture probe in #C7467 **DATE:** 7-29-09

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 20

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 **AHA-09-004 Rev 0**

SAMPLING SUMMARY — Sample #'s / Interval / % — N/A

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

BOREHOLE SUMMARY

Borehole # 7467 Tubing (2 1/2) @ 114' to G.S. ft bgs; S.U. N/A

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

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

GEOPHYSICAL LOGGING — Boring # / Interval / Type — N/A

TIME	WORK SUMMARY
0530	E.S.F.S Safety meeting - Safety Topic: Adversity and Team building
0540	Stand bye for timecard training
0655	Redirected per management to go to work at C Tank Farm. Take timecard
—	training in near future
0657	Drive to C Tank farm.
0727	Arrive at C Tank Farm.
0737	Pre-job with crew. Bill Clark went over getting carrown supplies: gloves, sunblocket
0755	Drive to change trailer, put whites on, Be ready to work.
0816	Go into C Farm Rig inspection.
0815	Start back pulling to 46' to install second moisture probe.
0915	Back pulled and decommissed to 64' bgs with Rods Bentonite at 84' bgs.
0917	Directed that CAT was broke down. Mr. Passey switching out with Mike Weekly.
0918	Going to take water Break.
0952	Everyone here ready to start again.
1010	Back pulled casing to 38' bgs and Bentonite up to 48' bgs then scoured to 46' bgs.
1033	Exiting Farm HPT got stung by a sweat bee.
1038	Take a break.
1055	Dress back in Farm. Paul ok. Install probe @ 46' bgs.
1100	Pull 2 rods, to 30' bgs then added sand to 41' bgs 3' above Probe.
1105	Exit zone for lunch
1130	Lunch break
1200	Enter change trailer/continue pulling and decommissioning to surface.
1215	Entered farm
1220	Start back pulling at 30' bgs pulled 1 rod hit contamination fixed at 50' waste

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Mike Passey, Mike Weekly
NCO: Izzy Villareal Scott Snook
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 100+ F Muggy hot / Breezy 10-15

DOWNTIME: 0

DISCARDED ITEMS:
1-Salt
10-Bags bentonite
1-50' probe
1-bag sand (50lbs)
2 rods 2 1/2

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev 0/36472 Task 6

REPORT BY: Mark A. Repko
TITLE: *ES TECHNICAL PREPARER*
SIGNATURE: Mark A. Repko

REVIEWED BY: D.F. Skoglie
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: D.F. Skoglie **DATE:** 7/30/09

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No	Continuation of Report No.
7-29-09	#C 7467	#20

DESCRIPTION OF OPERATIONS/REMARKS

1225 -	pulled last rods up slow So far lost (2) rods due to contamination
130	pulled rods to ground surface, the 2' and shoe were on string we didnt break any of the string. used 10 bags of bentonite.
140	Moving pipe off rack moving equipment towards hole #C 7465 to sample tommorrow at #C 7466.
157	Exiting zone everything is staged for sampling, Rig going to be moved tommorrow after NCO samplers do there sampling.
210	Wash up, take equipment to horse trailer.
230	Drive to E.S.F.S.
300	End of Shift / Timecard

Report By	Mark A. Repko	Reviewed By	D.E. Sikoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Reviewer	Date	7/30/09
Signature	Mark A. Repko	Signature	Dwl E Sikoglie		

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 7-29-09 HHU#: Rig 1 (Case) Hour Meter: 3036 Operator Mark A. Rapko

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: N/A

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 2

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Soil Samples #C7466 **DATE:** 7-30-09

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 21

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 **AHA-09-004 Rev 0**

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 # C7466 Tubing (5/8") @ 0 to 14' 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	E.S.E.S. Safety Meeting Topic: Safety Awareness non routine.
0545	Drive to C Tank Farm.
0610	Arrive at C Tank Farm.
0611	Called Bill Clark, went to Sx Farm to get granular bentonite.
0630	Arrive At Sx Farm Load 20 bags bentonite.
0641	Drive to C Tank Farm.
0700	Arrive at C Tank Farm
0701	Prejob with everyone / NCO's showed up. Waiting on 1 more HPT (standbye)
0731	Everyone talked NCO's, Larry and Steve, ED to take surface samples. We only
—	have 1 HPT.
0740	HPTs and NCO's getting ready to go into Farm For Surface Samples.
0745	AT change Trailer, move equipment into farm, bentonite, 2 surface completions, 1 grout/crete.
0755	Going into C Farm move equipment in.
0810	NCO Larry taking surface samples (VOA's) See notes.
0820	Larry done taking surface samples exiting zone
0825	Waiting for 3rd spotter to move rig.
0845	Moving rig on hole #C7466.
0855	Moved rig on hole, setting up 2 5/8 drilling equipment.
0905	Ready to start driving dual wall 2 5/8 to 5' to 7' sample depth.
0920	Set 1st sampler in hole from 5' to 7'. Getting ready to drive sample to 7'.
0930	Drove 1st sample at 5' to 7' bgs / sampler coming out of hole
0940	obtained first soil samples to 7' bgs.
0942	Running Dual wall with Dummy tip back in to drive to 10'-12' bgs.
1010	Drove down to 10' to 12' bgs installing samplers

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Mike Posey
NCO: Scott Swaim, Izzy Villareal
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 100°F

DOWNTIME: 2/3 hr. NCO

DISCARDED ITEMS: 9 SS sample liners

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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:** 07/31/09

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No	Continuation of Report No
7-30-09	#C7466	#21

DESCRIPTION OF OPERATIONS/REMARKS

1019	Drove second sample from 10' to 12' bgs.
1028	Run dummy tip back down Drive to 14' to 16' bgs.
1045	3rd sample / ready to pull dummy tip and drive 3rd sample.
1046	Taking a cool down break.
1115	Dress in whites / Enter zone.
1120	Pulling Dummy tip adding sampler.
1131	Driving 3rd sample in #C 7466
1140	3rd sample out of the hole Drove sample from 14' bgs to 16.5' bgs.
1141	Casing is 14 with 2.3' stickup. / 45/15 work regiment
1142	Going out For Lunch
1200	Lunch break
1230	Wet bulb too high done for day in farm
1245	notes: 3 samples obtained today 5'-7' = 100%, 10-12 = 33%, 14'-16' = 80% / Stanthyr Heat
130	Drive to E.S.F.S.
2:00-300	Paperwork / End of shift.
notes:	Surface 0-1' / Surface "B" 0-1'
	B211X8 / B211Y0
	B211X9 / B215K9
	B215KB / B21731
	I-001 @ 5'-7' / I-002 @ 10'-12'
	~~B20XW6~~ - A,B,C 100% Total / B20XW9 - A = 100%, B Empty 33% total
	B20XW7 - VOA / B20XX0 - VOA
	B20XW8 - VOA / B20XX1 - VOA
	I-003 @ 14'-16'
	B20XX2 - A = 100%, B = 100%, C = 33% / 80% total
	B20XX3 - VOA
	B20XX4 VOA

Report By	Mark Repko	Reviewed By	D. E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical reviewer	Date	07/31/09
Signature	Mark Repko	Signature	Daniel E Skoglie		

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 7-30-09 HHU#: Rig #1 case Hour Meter: 3037 Operator Mark Repko Mike Russey

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:

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: Drill to next sample interval on #C7466 DATE: 7-31-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 22

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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 # C7466 Tubing ( ) @ 16' to 43.5 ft bgs; S.U. 2.5

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	Safety meeting at E.S.F.S. Safety Topic: Bugs, sweat bees.
0545	Drive to C Tank Farm.
0615	Arrive at C Tank Farm
0616	Go fill water for surface seal cap / for the misters.
0645	Pre-job with Clark. Went over job scope, Safety topic, bugs.
0715	Drive to change trailer.
0732	Dress up for work.
0743	Equipment inspection. Fluid levels ok.
0800	Running Dummy tip in and start driving to 43.5'-45.5' bgs.
0934	Drove dual wall to 43.5' bgs / Inner string and dummy tip in hole.
0935	Load rod rack to drill monday. / Ready for sampler.
0945	Left zone, exiting Farm. (No Sampling support) / Work at 50/50 work regiment. (Standbye)
1015	Hold visitor talked about future work scope and current.
1055	Drive to C change trailer to string cord for air conditioning in Green Hut.
1105	Entering C Tank Farm.
1135	Exiting C Tank Farm cord was to short to run to fence, Need to get 200' Cord from SX Tank Farm. Bill is going to pick up on Monday.
1136	Hot out 75/15 work regiment, No sampling support. (Standbye)
1137	Lunch break
1267	Drive to E.S.F.
200	End of shift

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Mike Passey
NCO: Scott Snook, Izzy Villareal
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 100+ F

DOWNTIME: 3.25 hr. for NCO's

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 7/31/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 7-31-09 HHU#: Rig #1 (case) Hour Meter: 3039 Operator Mark Repko Mike Rissay

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: N/A

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

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Soil sample at #C7466 | DATE: 8-3-09

LOCATION: Hanford Site, C Tank Farm | EXCAVATION: DAN-3675 U-DIG #: 9156222 | REPORT #: 23

START CARD NO. AE06418 | DECOMMISSION NO. SE04981 | RWP: CO-460 AHA-09-004 Rev 0

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

Sample #'s Interval %

1. See notes on Back
2.
3.
4.

BOREHOLE SUMMARY

Borehole #C7466 Tubing (2 5/8) @ 43.5' to 84' ft bgs: S.U. 2.6

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 E.S.F.S.
0545	Drive to C Tank Farm
0615	Arrive at C Tank farm/unlock horse trailer. Get safety equipment
0630	ACES station for the week
0635	Standby for Pre job.
0715	Pre-job, Talked about work scope. Sampling at C7466@43.5'
0745	Enter zone. Check oil, antifreeze, inspection.
0755	HPT to check air samples
0810	Pull dummy tip and inner rods.
0825	Run sampler to 43.5 bgs
0835	Driving: Sample from 43.5'-45.5' bgs
0846	Obtained 1st sample @ 43.5-45.5 bgs
0850	Run dummy tip and inner rods back in
0900	Start driving dual wall to 84' bgs - 86' bgs (next sample interval).
1030	Drove dual wall to 84' bgs. Dummy tip still in hole
1035	Dress undress for water break.
1040	Drive up to C farm trailer Talked to FWS wet bulb too hot to sample.
1100	Standby due to heat.
1130	Lunch
1200-	Standby for heat.
230	Drive to E.S.F.S.
300	End of shift. Time card
	N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: SCOTT SMOOK, IZZY Villareal
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 100+ F

DOWNTIME: 3.9 hr.

DISCARDED ITEMS:
5-Lynch pins
3-sample Liners

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Mark Repko
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Mark A. Repko

REVIEWED BY: D.F. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David F. Skoglie DATE: 8/04/09

ENERGY SOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

Date	Well No	Continuation of Report No
8-3-09	C 7466	#23

DESCRIPTION OF OPERATIONS/REMARKS

notes: Sample time of NCO's is 0845.
C-7466 interval 4
B20XX5 A, B, C, = 100% total recovery
B20XX6 voa
B20XX7 voa

N/A

Report By	Mark A. Repko	Reviewed By	D.E. Skoglie		
Title	ES TECHNICAL/SAFETY REP	Title	ES Technical Review	Date	8/04/09
Signature	Mark A. Repko	Signature	Dale E Skoglie		

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-3-09 HHU#: Rig #1 (Case) Hour Meter: 3040 Operator Mark Rosko / Olin Amos

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: N/A

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

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Sampling #C74166 — DATE: 8-4-09

LOCATION: Hanford Site, C Tank Farm — EXCAVATION: DAN-3675 U-DIG #: 9156222 — REPORT #: 24

START CARD NO. AE06418 — DECOMMISSION NO. SE04981 — RWP: CO-460 — AHA-09-004 Rev 0

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

SAMPLING SUMMARY

Sample #'s	Interval	%
1. See Notes		
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C74166 Tubing (2 5/8) @ 84' to ~~110.3~~ 109.5 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	Safety Meeting at E.S.F.S Safety topic: Construction falls
0545	Drive to C Tank Farm
0610	Arrive at C Tank Farm. / Standby for Pre job
0710	Pre-Job.
0730	Dress in whites.
0730	Enter Farm for work. Trip inner tubing/tip out - install sampler.
0819	Driving first sample 84' bgs - 86' bgs.
0843	obtained sample to surface. Installed inner tubing/tip.
0847	Driving down to 109.5
1130	Drove to 109.5. Tip still in hole.
1145	Lunch
1215	Pull dummy tip @ 109.5
1237	Start driving 109.5 to 111.5
205	obtained sample @ 109.5 to 111.5 / 27-2 5/8 rods in ground with 2' stickup. No inner rods.
—	total rods in hole (110.3 with 2' stickup) - end of day (back pull to 108.3 bgs).
215	Exit C Farm
230	Drive to E.S.F.S.
300	End of shift.

notes: I-005 84-86 — I-006 109.5 - 111.5

B211W3 A,B,C = 100% total — B211W6 A,B,C = 100% total

B211W4 VOA's — B211W7 VOA's

B211W5 VOA's — B211W8 VOA's

OPERATOR/LICENSE: Mark Replko #3012

ES SUPPORT: Olin Ames

NCO: Scott Snook, Izzy Villarreal

HPT: Paul Templeton Bill Bernard

FWS: Bill Clark

WEATHER: 100 F

DOWNTIME: 1 hr.

DISCARDED ITEMS: 6 Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Mark Replko

TITLE: ES TECHNICAL PREPARER

SIGNATURE: Mark A. Replko

REVIEWED BY: D.E. Skoglie

TITLE: ES TECHNICAL REVIEWER

SIGNATURE: David E. Skoglie DATE: 8/5/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-4-09 HHU#: Rig 7 cam. Hour Meter: 3047 Operator Mark Regalado Olin Amos

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:

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

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Soil sample #C7466 DATE: 8-05-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 25

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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 # C7466 Tubing (2 5/8) @ ~~110.7~~ 109.5 to ~~132.3~~ 133.0 ft bgs; S.U. 2'

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	Safety meeting E.S.E.S.
0545	Drive to C Tank Farm.
0615	Arrive at C Tank Farm
0715	Pre job at C Tank Farm. / dress in whites.
0730	Ran inner rods and dummy tip to bottom, drove to 114' bgs.
0830	Pull dummy tip and add sampler.
0920	Start driving sample @ 114'-116' bgs.
0943	obtained sampler @ 114-116' bgs. 100% recovery
0945	Take water break.
1015	Run inner rods to 116' bgs.
1043	Start driving to 133 bgs.
1200	Drove to 133' bgs. Start tripping inner rods.
1230	Take water break / Standby for sampler from NCO's / Took Lunch
1255	Put sampler to bottom @ 133' bgs
121	Driving sampler #2 @ 133' bgs - 135' bgs
152	obtained #2 sample @ 133' bgs - 135' bgs. / Backpulled casing to 132.3' with 2' S.U.
153	General cleanup around rig.
200	Exit zone.
230	Drive to E.S.E.S.
300	End of shift. Time cards.

notes: I-00 #C7466 114' bgs - 116' bgs I-008 #C7466 133' bgs - 135' bgs
B211W9 ABC 100% total B211X2 ABC = 100% total
B211X0 VOA'S B211X3 VOA'S
B211X1 VOA'S B211X4 VOA'S

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: Scott Sroux IZZY V. Oareal
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 98° F

DOWNTIME: 1.5 hr.
Pre-job 1.0
Waiting for support (NCO) .5

DISCARDED ITEMS: 5-Lynch pins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Mark Repko
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Mark A Repko

REVIEWED BY: David E Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: David E Skoglie DATE: 8/05/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-5-09 HHU#: Rig #1 case Hour Meter: 3057 Operator mark Repko
Olin Amos

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: N/A

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: Decommision hole #C7466 DATE: 8-6-09

LOCATION: Hanford Site. C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 26

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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 #C7466 Tubing (2 5/8) @ 132.3 to N/A ft bgs; S.U. 2.5"

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	Safety meeting E.S.F.S. Safety Topic: Food poisoning, Send out daily
0555	Drive to C Tank Farm
0625	Arrive at C Tank Farm. Unload diesel cans, unlock horse trailer.
0630	Standby for lightning on AOP014. The FWS directed us that we
—	have arm sleeve training at the Smurf building @ 8:30
0830	OFF AOP014 for lightning. Standby for arm sleeve training.
0915	Drive to smurf for arm sleeve training.
0930	Had arm sleeve training.
1000	Arrive back at C Farm / Wind is 18-20mph, awaiting decision on back pulling.
1005	Lunch Time
1030	Standby for wind 18-20mph. / no entry in farm today.
130	Drive to E.S.F.S.
200	Arrive at E.S.F.S. Fill paperwork, Timecards.
300	End of Eshift.
	N/A

OPERATOR/LICENSE: Mark Repko #9012
ES SUPPORT: Olin Amos
NCO: Scott Snook Izzy Villareal
HPT: Paul Templeton Bill Bernard
FWS: Bill Clark

WEATHER: 90 F
Windy 18-20mph.

DOWNTIME: 8 hrs- Due to Lightning and Wind.

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Mark A. Repko
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Mark A. Repko

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: D.E. Skoglie DATE: 8/10/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommission hole #C7466 / Setup on #C7468 DATE: 8-10-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 27

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

SAMPLING SUMMARY

Sample #'s Interval %

1. See notes
2.
3.
4.

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

BOREHOLE SUMMARY

Borehole #C7466 Tubing (2⅝) @ 132.3 to G.S. ft bgs; S.U. - N/A

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	Safety meeting at E.S.F.S. Safety Topic - Keep things Simple.
0545	Drive to C Tank Farm
0615	Arrive at C tank Farm.
0730	Pre job with crew.
0800	Enter C Tank Farm / Backpulling From 132.3 - G.S.
01000	Done with hole #C7466 decommissioned with 8½ bags bentonite to G.S.
—	NCO's showed up to take surface sample on #C7468.
1010	Taking a lunch break.
1040	Drive to change trailer dress up / Clean 2⅝" pipe / Move Rig to #C7468
100	Rig setup on hole #C7468 and ready to start sampling.
215	Exit C Tank Farm
217	Get cleaned up / wash hands.
230	Drive to E.S.F.S.
300	End of shift / Time cards.

notes

Surface Sample	Surface Duplicate
B21220	B21222
B21221	B21732
B215L0	B215L1

N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: Scott Spook, Izzy Villareal
HPT: Paul Templeton Bill Bernard
FWS: Bill Clark

WEATHER: 88°F

DOWNTIME: 1.5 For Pre-Job

DISCARDED ITEMS: 9 bags Granular Bentonite

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Mark Repko
TITLE: ES TECHNICAL PREPARER
SIGNATURE: Mark A. Repko

REVIEWED BY: Daniel Shoglin
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Daniel Shoglin DATE: 8/11/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-10-09 HHU#: Rig #1 case Hour Meter: 3054 Operator: Mark Repko Olin Amos

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: N/A

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: Soil Sampling on #C-7468 DATE: 8-11-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 28

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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

Sample #'s	Interval	%
1. See notes		
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole #C7468 Tubing (2 5/8)@ 0' to 43.5 ft bgs: S.U. 3.8

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	Safety meeting at E.S.F.S. Safety topic: Priorities.
0545	Drive to C Tank Farm.
0615	Arrive at C Tank Farm.
0715	Pre-job - for Sampling.
0725	Get fuel for Rig and pipe dope.
0745	Enter C Tank Farm. Drive DWSS from 0 to 5 ft bgs. trip in and out.
0827	Driving First sample from 5' to 7' bgs. 100% Recovery (See notes) 08:40.
0858	Driving Second sample from 10' to 12' bgs. 75% Recovery (see notes) 09:10.
0907	Start driving to third interval 14' to 16' bgs. 100% Recovery (See Notes) 09:45.
0937	Driving third sample @ 14' to 16' bgs. 100% Recovery
0960	Start driving to 4th sample depth @ 43.5-45.5' bgs.
1130	Drove to Sample depth 43.5-45.5' bgs. / Wind is 10-15 mph.
1131	Exit farm for Lunch
1145	Lunch
1215	Cleanup horse trailer.
230	Drive to E.S.F.S.
300	End of shift / Timecard

notes:

C7468 I-001 5' to 7' bgs
B21143 A, B, C, = (100%)
B21144 VOA-002-143
VOA-002-144
B21145 VOA-002-145

C7468 I-002 10' to 12' bgs
B21146 A=100%, B=100%, C=Empty
B21147 VOA-002-147
B21148-148 VOA's (75% total)

C7468 I-003 14'-16' bgs
B21149 A, B, C=100%
VOA-002-149
B21200/VOA-002-150
B21201 VOA
VOA-002-151

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: Izzy Villareal Scott Snook
HPT:
FWS: Bill Clark

WEATHER: 80° F Warm, Breezy

DOWNTIME: 3hr total 1 hr. pre-job 2 hr. winch

DISCARDED ITEMS: 1-pipe dope (Well Guard) 1-2 5/8 Drive Head

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 8/11/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-11-09 HHU#: Rig #1 case Hour Meter: 3059 Operator Mark Repko Olin Amos

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: N/A

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: Soil sample #C7468 DATE: 8-12-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 29

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

SAMPLING SUMMARY

Sample #'s Interval %

1. See notes
2.
3.
4.

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

BOREHOLE SUMMARY

Borehole # C7468 Tubing (2 5/8) @ 43.5 to 92 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	Safety meeting at E.S.F.S. Safety Topic
0545	Drive to C Tank Farm
0615	Arrive at C Tank Farm (Standby for pre-job)
0715	Pre job at C Tank Farm trailer.
0725	Drive to change trailer to dress out in whites.
0740	Rig inspection.
0750	Pull dummy tip from 43.5' bgs. / Run sampler in
0820	Start drilling 4th sample from 43.5'-45.5' bgs.
0836	Retrieved sample @ 43.5' to 45.5' bgs. 100% recovery (see notes)
0845	Run inner rods to bottom of hole continue drilling to 92'-94' bgs.
1100	Drove to 5th interval 92' bgs.
1105	Leaving zone for Lunch / Wash up
1115	Lunch
1145	No time to pull sample. Generator to be inspected. All hands meeting
—	downtown (Standby) Maintenance on generator.
1146	Drive to E.S.F.S. to work on paperwork
300	End of shift / Timecard

notes: #C7468 I-004 (43.5-45.5')
B21202 A, B, C = 100% Total
VOA-002-152 B21204
B21203 VOA-002-154
VOA-002-153

N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: Izzy U, Marcel Scott Snook
HPT: Paul Templeton Bill Bernard
FWS: Bill Clark

WEATHER: 80 F wind 10-15 overcast, light rain.

DOWNTIME: 2.25 hrs generator/all-hand meeting.

DISCARDED ITEMS: 3 - sample Liners

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 8/13/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-12-09 HHU#: Rig #1 Hour Meter: 3060 Operator _____

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: N/A

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: Soil Sample #7468 DATE: 8-13-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 30

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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 # C7468 Tubing (2 5/8) @ 92 to 125 ft bgs: S.U. 1.3

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	Safety meeting E.S F.S. Safety topic - Equipment inspection.
0545	Drive to C Tank Farm
0645	Pre-job with samplers and support
0720	Dress in whites, Rig inspection
0819	Pull inner string pipe @ 92' bgs, Trip sampler in to 92' bgs.
0824	Driving 5th sample (ending time), pulling inner rods with sampler, trip dummy tip in
0915	Tripped inner rods begin driving to next interval 97 bgs.
0946	Running 6th sampler in hole. Taking Lunch early.
1058	End time of 6th sampler @ 97' bgs to 99' bgs., pull sample to surface, Run
—	Dummy tip in hole to bottom.
1136	Driving to next interval 125' bgs.
200	Drove to 7th sample depth @ 125 bgs
205	Exiting zone for cleanup.
230	Drive to E.S. F.S.
300	End of shift / Timecards

notes: C7468 @ 92' to 94' bgs. I-005
B21205 A, B, C - 100% total
B21206 VOA-002-165
B21207 VOA-002-156
VOA-002-157

C7468 @ 97' to 99' bgs I-006
B21208 A, B, C - 100% Total
B21209 VOA-002158
B21210 VOA-002-159
VOA-002-160

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos
NCO: 1224 Villareal Scott Swank
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 85 F
Cool breezy 10-15 winds
DOWNTIME: 1hr. Waiting for pre-job

DISCARDED ITEMS: 8-Lynchpins

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 8/13/09

ENERGY SOLUTIONS
HYDRAULIC HAMMER MAINTENANCE/INSPECTION CHECKLIST

Date: 8-12-09 HHU#: Rig #1 case Hour Meter: 3064 Operator mark Repke Olin Ramos

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: N/A

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: Support sampling on C7468 DATE: 8-14-09

LOCATION: Hanford Site. C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 31

START CARD NO. AE06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

SAMPLING SUMMARY — Sample #'s Interval %: 1. 2. 3. 4. N/A

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

BOREHOLE SUMMARY

Borehole # C7468 Tubing (2⅝) @ 125 to N/A 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	Safety meeting at E.S.F.S. Safety Topic - Motorcycle Safety
—	Monthly safety meeting with Energy Solutions staff
0715	Drive to C Tank Farm.
0745	Arrive at C Tank Farm.
0746	Standby for no Sampling support. (NCO's)
0800	Got ECN# for surface protection, going to Rigging loft to have tags made.
0900	Tags made, back from rigging loft, C Farm down for NCO coverage. (Standby)
01256	Drive to E.S.F.S., paperwork at office
0130	Arrive at E.S.F.S.
200	End of shift/time card

N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT:
NCO: Scott Snook Izzy Villaseñor
HPT: Paul Templeton Bill Bernard
FWS: Bill Clark

WEATHER: 80° F Windy 10-15 Gusting 20 mph

DOWNTIME: 6.5 No NCO support

DISCARDED ITEMS: N/A

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 8/14/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS

Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Soil Sampling C7468 | DATE: 8-17-09

LOCATION: Hanford Site, C Tank Farm | EXCAVATION: DAN-3675 U-DIG #: 9156222 | REPORT #: 32

START CARD NO. AE06418 | DECOMMISSION NO. SE04981 | RWP: CO-460 AHA-09-004 Rev 0

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

Sample #'s	Interval	%
1. See notes		
2.		
3.		
4.		

BOREHOLE SUMMARY

Borehole # C7468 Tubing (2 5/8) @ 125 to ~~135~~ 137.0 DEA ft bgs; S.U. 2.6

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 E.S.F.S.
0545	Drive to C Tank Farm
0615	Arrive at C Tank Farm. (Standby) for Pre-job.
0715	Pre-job with Tank Farm personnel.
0725	Enter Farm. Rig inspection, Grease and Fuel Rig, set up shade.
0833	Start pulling dummy tip @ 125' bgs on hole #C7468. Install sampler.
0903	Water break, dress in whites, ready to sample no NCO's NCO's on the
—	way, Driving sample @ 125-127' bgs (end time) 9:29am.
—	Trip sampler out of hole continue driving to 135' bgs after dummy tip installed.
1030	Lunch break
1100	Tripping inner string to bottom @ 127' bgs, start driving to 135'.
1225	pulling dummy tip @ 135' bgs, Tripping in sampler.
120	Driving sample @ 135' to 137' bgs. Sample (end time) is 1:25pm.
126	Tripping sampler to surface.
155	Obtained sample @ 135 to 137' bgs at #C7468 last interval of
—	sampling. The pipe is at 136.3' with 2.6" s.u.
200	Exit zone / cleanup and drive to office at 2:30pm.
300	End of shift

notes: C7468 I-007 125'-127' | C7468 I-008

B21211 A,B,C = all 100% total | B21214 A,B,C = all 100%

B21212 VOA's | B21215 VOA's

B21213 VOA's | B1216 VOA's

OPERATOR/LICENSE: Mark Repko #302
ES SUPPORT: Olin Amos
NCO: Izzy Villarreal
HPT: Paul Templeton Bill Bernard
FWS: Bill Clark

WEATHER: 90°F

DOWNTIME: 1hr. For Pre-job

DISCARDED ITEMS: 1- 4" Allen Screw For Driving assembly

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 8/18/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Decommission hole #C7468 DATE: 8-18-09

LOCATION: Hanford Site, C Tank Farm EXCAVATION: DAN-3675 U-DIG #: 9156222 REPORT #: 33

START CARD NO. AB06418 DECOMMISSION NO. SE04981 RWP: CO-460 AHA-09-004 Rev 0

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 # C7468 Tubing (2 5/8) @ 137 ~~133.7~~ to G.S. 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.	N/A	
2.		
3.		

TIME	WORK SUMMARY
0530	Safety meeting E.S.F.S. Safety Topic: Metal shavings.
0545	Drive to C Tank Farm.
0615	Arrive at C Tank Farm. (Standby) - For Pre-Job.
0715	Pre-Job with Tank Farm staff.
0730	Gather equipment for decommissioning #C7468.
0845	Enter C Tank Farm Rig inspection, start back pulling #C7468
0948	Back pulled and Bentonite back to (98 bags with bentonite (Tagged @ 137 bgs.)
—	Continue back pulling Bentonite is at 47 bgs casing is at 40' bgs hole is
—	staying open. Taking (Lunch break) 1130 a.m.
1200	Dress in whites continue backpulling from 40' bgs. to surface @ 12' pipe
—	we decommissed with granular bentonite to 14; then pulled remainder
—	of casing to the 2" rod and bentonite from 14' to G.S. Hole #C7468
—	completely decommissed.
—	
100	Cleaning 2 5/8 rod threads, Inner rods of grease and brush through 2 5/8.
200	Exit Farm, wash up,
230	Drive to E.S.F.S.
300	End of shift/Timecard
	N/A

OPERATOR/LICENSE: Mark Repko #3012
ES SUPPORT: Olin Amos, David Skoglie
NCO: Izzy Villareal
HPT: Paul Templeton
FWS: Bill Clark

WEATHER: 94°F

DOWNTIME: 1 hr. Pre-Job

DISCARDED ITEMS: 3.5 bags Granular Bentonite

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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: 8/18/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Remove HHU#1 from farm, remove samplers from farm and stage materials for future use. **DATE:** 8/19/2009

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 34

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 AHA-09-004 Rev 0

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 # _____ *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. NA
2.
3.

TIME	WORK SUMMARY
0530	Morning safety meeting. Traveled to field
0605	Arrive @ SX farm and picked up supplies.
0637	Arrive at C Farm.
0700	HPT arrives. Discuss what needs to be done. Need more HPT's to survey the HHU out of the zone. Once additional HPT's arrive, pre job meeting was conducted.
0815	Enter farm to move HHU for exit survey. Move contaminated samplers to staging area and move materials to a predetermined area inside the farm for future use. Dig holes around surface protectors.
1000	Travel to 222-S and SX Farm to inquire about narrow probe for surveying tubing.
1130	Lunch
1325	HHU cleared for removal from survey area. Transported HHU to SMURF decon pad.
1415	Travel to office.

N/A

OPERATOR/LICENSE:
ES SUPPORT: Steffler/Passey
NCO: Izzy
HPT: Paul, Nicky, Seth
FWS: Bill

WEATHER: Clear, 100 F

DOWNTIME:
Not driving tubing.

DISCARDED ITEMS:
None

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: Rory Z Steffler
TITLE: *ES TECHNICAL PREPARER*
SIGNATURE: R.Z. Steffler

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: Cement surface protectors, clean + ~~surface~~ service HHU, transport samples

DATE: 8-20-09

LOCATION: Hanford Site, C Tank Farm

EXCAVATION: DAN-3675 **U-DIG #:** 9156222

REPORT #: 35

START CARD NO. AE06418

DECOMMISSION NO. SE04981

RWP: CO-460 AHA-09-004 Rev 0

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 # ____ 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
0530	Morning safety meeting.
0605	Travel to EOW to pick up tools.
0700	Arrive at C Farm. Pre job meeting + waiting for HPT's
0740	HPT's arrive. Discussion about new borehole locations around C-105 + change of work activity. HHU maintenance will not be done today.
0800	Entered C Farm. Cemented surface protectors on boreholes C7465 + C7467. Placed markers on C7466 + C7468.
0925	Exited C Farm. Making arrangements to obtain items to transport samplers. 222-S samplers will not transport samplers due to conflict of interest in regards to chem techs cleaning samplers.
0950	Determined by Dave Roberts (Chief Steward for NCO's) that tank farm operators can transport samplers to 222-S.
1030	Myself + Izzy Villarreal transported 10 radiologically contaminated samplers to 222-S lab.
1100	Lunch.
1200	Relocated personnel. Returned to office. No work done on HHU #1. Passey replaced Amos at SX Farm.

RZS 8-20-09

OPERATOR/LICENSE:
ES SUPPORT: Steffler, Passey
NCO: Villarreal
HPT: Ellingsworth, Flacher
FWS: Clark

WEATHER: 104F Clear, Hot

DOWNTIME: NA

DISCARDED ITEMS: 2- Surface Protectors

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

REPORT BY: RZ Steffler
TITLE: ES TECHNICAL PREPARER
SIGNATURE: R.Z. Steffler

REVIEWED BY: D.E. Skoglie
TITLE: ES TECHNICAL REVIEWER
SIGNATURE: Don E. Skoglie **DATE:** 8/21/09

ENERGYSOLUTIONS

ENERGY SOLUTIONS, WESTERN OPERATIONS Page 1 of 1

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

PURPOSE: Demobilization and Maintenance **DATE:** 8/19-9/1/09

LOCATION: Hanford Site, C Tank Farm **EXCAVATION:** DAN-3675 **U-DIG #:** 9156222 **REPORT #:** 36

START CARD NO. AE06418 **DECOMMISSION NO.** SE04981 **RWP:** CO-460 AHA-09-004 Rev 0

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

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

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

N/A

GEOPHYSICAL LOGGING — *Boring #* *Interval* *Type*

1. N/A
2.
3.

TIME	WORK SUMMARY
08/19	The HHU #1 CASE was moved from C tank farm to exit survey pad. The HHU was surveyed and released from C tank farm. Holes were dug for placement of surface protection (C7465 and C7467). The HHU was transported to SMURF wash pad. Support material was moved to staging area for upcoming work. Contaminated samplers were moved to staging area.
08/20	Surface protection cemented in place (C7465 and C7467).
08/25	The HHU #1 CASE was pressure washed and moved to C tank farm. The head bolts were torqued to spec. Hydraulic accumulators were checked - OK. A hydraulic hose was moved to eliminate rubbing. Additional work will be conducted on the break-out wrench bracket to help eliminate hose rubbing.
09/01	The hydraulic wrench bracket was removed and a notch cut. The notch was cleaned up. The bracket was re installed. This completes FARi for the C-103 project.

N/A

OPERATOR/LICENSE: Repko
ES SUPPORT: Steffler, Passey,
NCO: Villareal
HPT: Ellingsworth, Flecker
FWS: B. Clark

WEATHER: 95 F

DOWNTIME: N/A

DISCARDED ITEMS: 2 - surface protection casings

REFERENCE/CONTRACT INFORMATION: FSWO-DOW-028 Rev. 0/36472 Task 6

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

REVIEWED BY: RZ Steffler
TITLE: *ES TECHNICAL REVIEWER*
SIGNATURE: R.Z. Steffler **DATE:** 9-3-09

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APPENDIX D

SMALL DIAMETER GEOPHYSICAL LOGGING FOR 241-C-103, PHASE 2

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APPENDIX
SMALL DIAMETER GEOPHYSICAL LOGGING FOR 241-C-103, Phase 2

Randall Price
Pacific Northwest Geophysics
4200 West 19th Avenue
Kennewick, Washington 99338

Russel Randall, PhD
Three Rivers Scientific
3740 Grant Court
West Richland, Washington 99353

TERMS

Bgs	Below ground surface
OD	outside diameter
PNG	Pacific Northwest Geophysics
VF	Volume Fraction (percent) of Moisture content

1 PROBEHOLE SURVEYS

Pacific Northwest Geophysics (PNG) and Three Rivers Scientific provided small diameter logging in two probeholes for the phase II characterization study of the 241-C-103 investigation site, in the C Tank Farm.

Logging surveys were conducted with a Bismuth Germinate (BGO) spectral gamma scintillation detector and a neutron-neutron moisture probe from the bottom of each probehole (maximum survey depth) to the ground surface. Zero depth reference is at the ground surface. The survey results for each probehole are presented as a depth versus concentration plot.

A repeat measurement was acquired to verify instrument repeatability. The computed results of the main and repeat intervals were reviewed and the results agree within the uncertainty of the measurement counting statistics. The repeat intervals are presented with the main log plot.

Table 1 below contains a summary of the survey results for each probehole: maximum log depth, maximum detection level for Cs-137.

Table 1. Probehole Survey Summary.

Hole	Hole Depth (meters)	Hole Depth (feet)	Spectral Observations	Cs-137 (pCi/g) Max Detection
C7465	61.7	202.5	Cs-137 observed 5.8ft to surface	53 pCi/g at 0.5 ft
C7467	52.7	173	Cs-137 observed 2ft to 0.5ft	5.5 pCi/g at 0.8 ft

Detector calibration certificates are presented in sections 2 (Spectral Gamma) and 3 (Neutron Moisture).

The log survey results follow. The log plots show a maximum of 100 feet per page with a 10 ft overlap between page breaks.

C-FARM C7465 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7465	Log Date:	Jul 2009
Project:	C Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	156-152	Moisture	145-139
	98-93		90-79
	57-53		10-0
	44-39		
	4-1		

ISOTOPES ANALYZED

Elements:	Energies Used (keV)
K-40	1462
Natural Uranium	1650-2390
Natural Thorium	2614
Cs-137	661

OBSERVATIONS

Spectral:

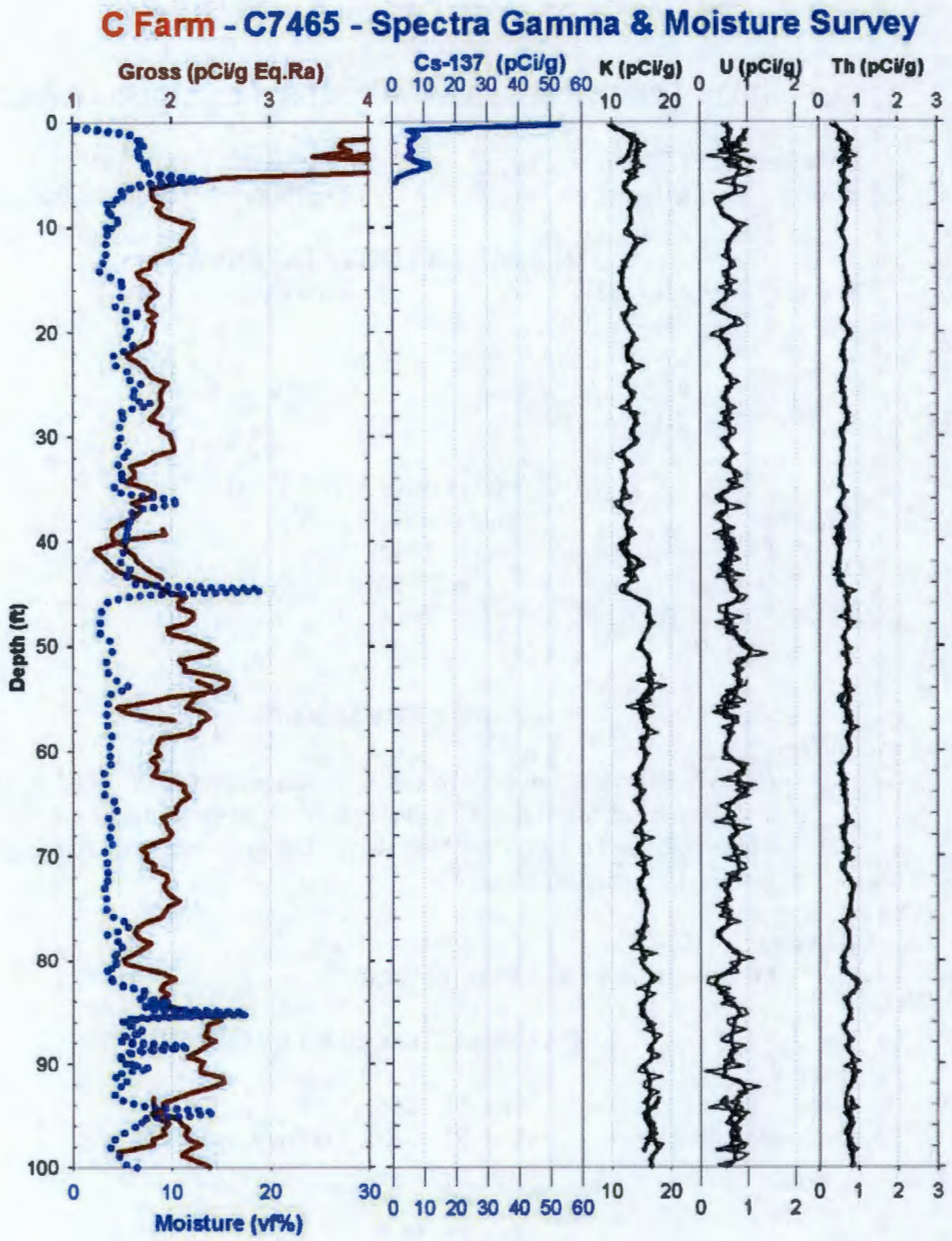
Cs-137 observed from 5.8ft to surface. Maximum Cs-137 is 53 pCi/g at 0.5ft, and the next maximum is 12 pCi/g at 4.5ft. The gross maximum is 21 Eq Ra-226 at 0.5ft and 6.2 Eq Ra-226 at 4.5ft. The gross response reflects the KUT and Cs-137 concentrations.

Moisture:

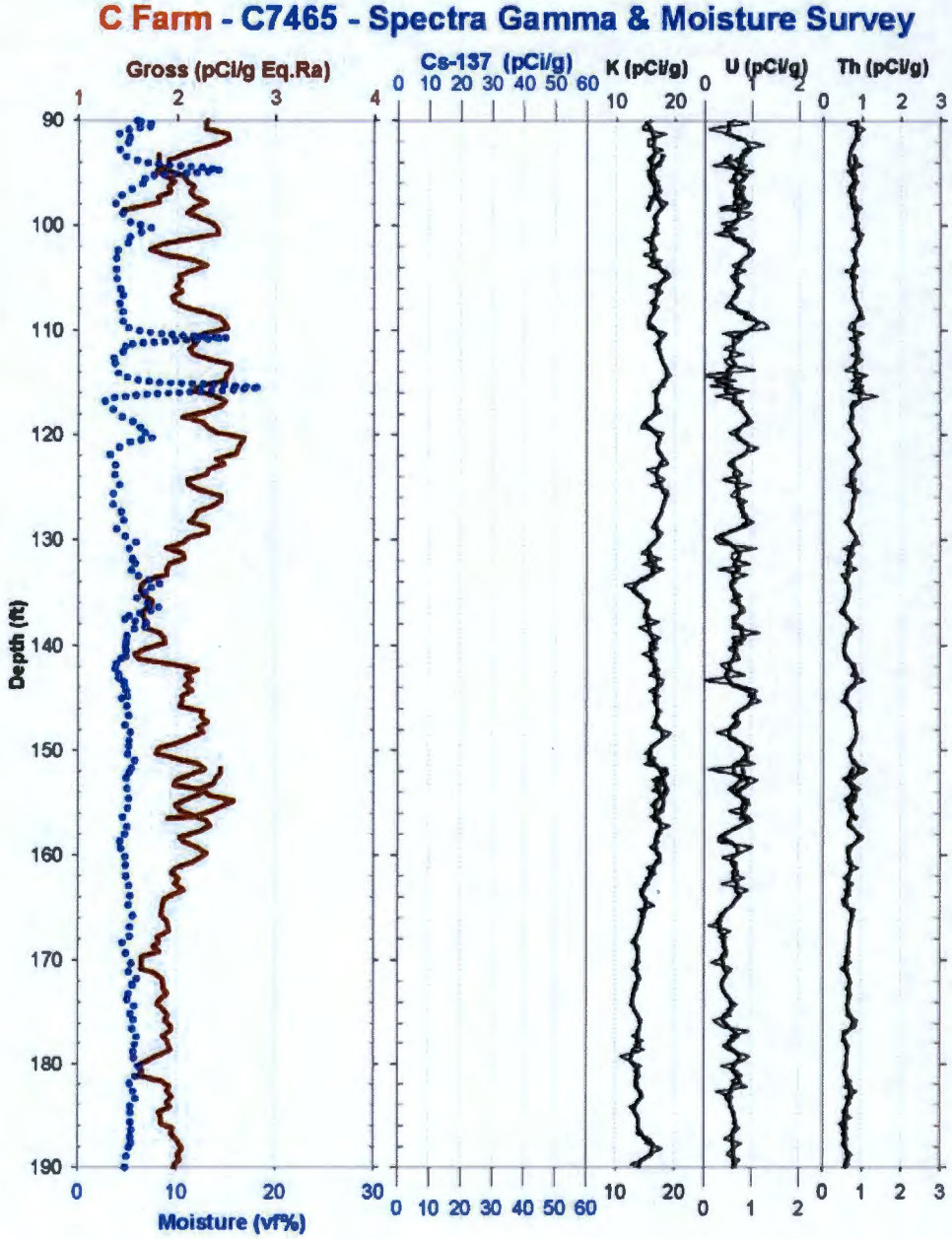
Moisture values range from 2.5-19.0%.

CALIBRATION CERTIFICATES

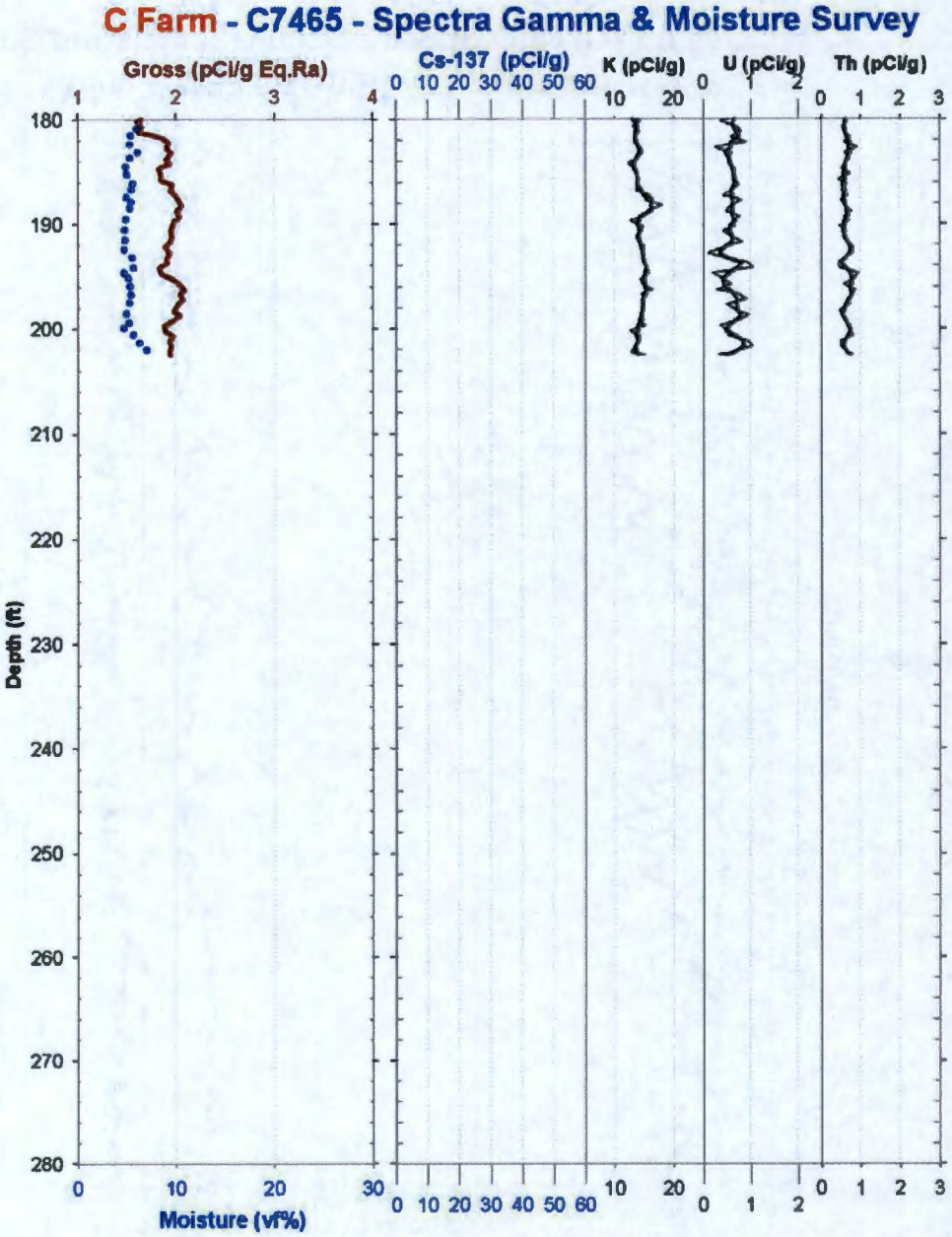
Spectral	
Date:	Apr 21, 2009
Electronic File:	Cal_SD-GR-2_2009-v0.zip
Moisture	
Date:	Feb 25, 2009
Electronic File:	SD-Moist792_2009.zip


C Farm - C7465 - 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


C Farm - C7465 - 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


C Farm - C7465 - 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-5

C-FARM C7467 HEADER INFORMATION

Small Diameter – Spectral Gamma & Moisture Survey

Probehole:	C7467	Log Date:	Jul 2009
Project:	C Farm	Depth Ref:	Ground Surface

REPEAT/OVERLAP INTERVALS

Spectral:	140-138	Moisture	100-90
	122-118		53-48
	105-103		47-40
	46-45		22-17

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 2-.5Ft. Maximum Cs-137 is 5.5 pCi/g at 1ft. The gross maximum is 3.2 Eq Ra-226 at 1ft. The gross response reflects the KUT and Cs-137 concentrations.

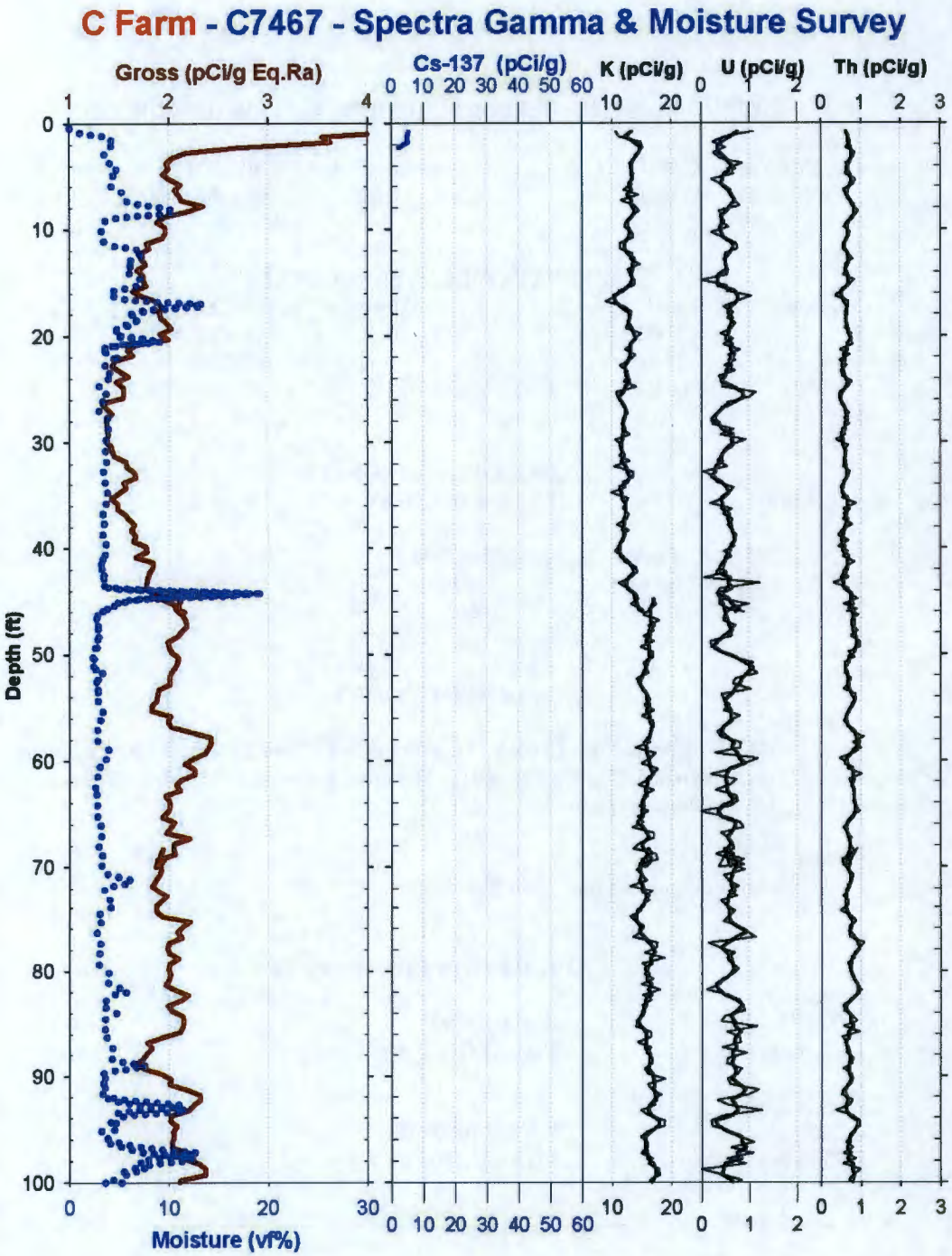
Moisture:

Moisture values range from 2.3-19.5%.

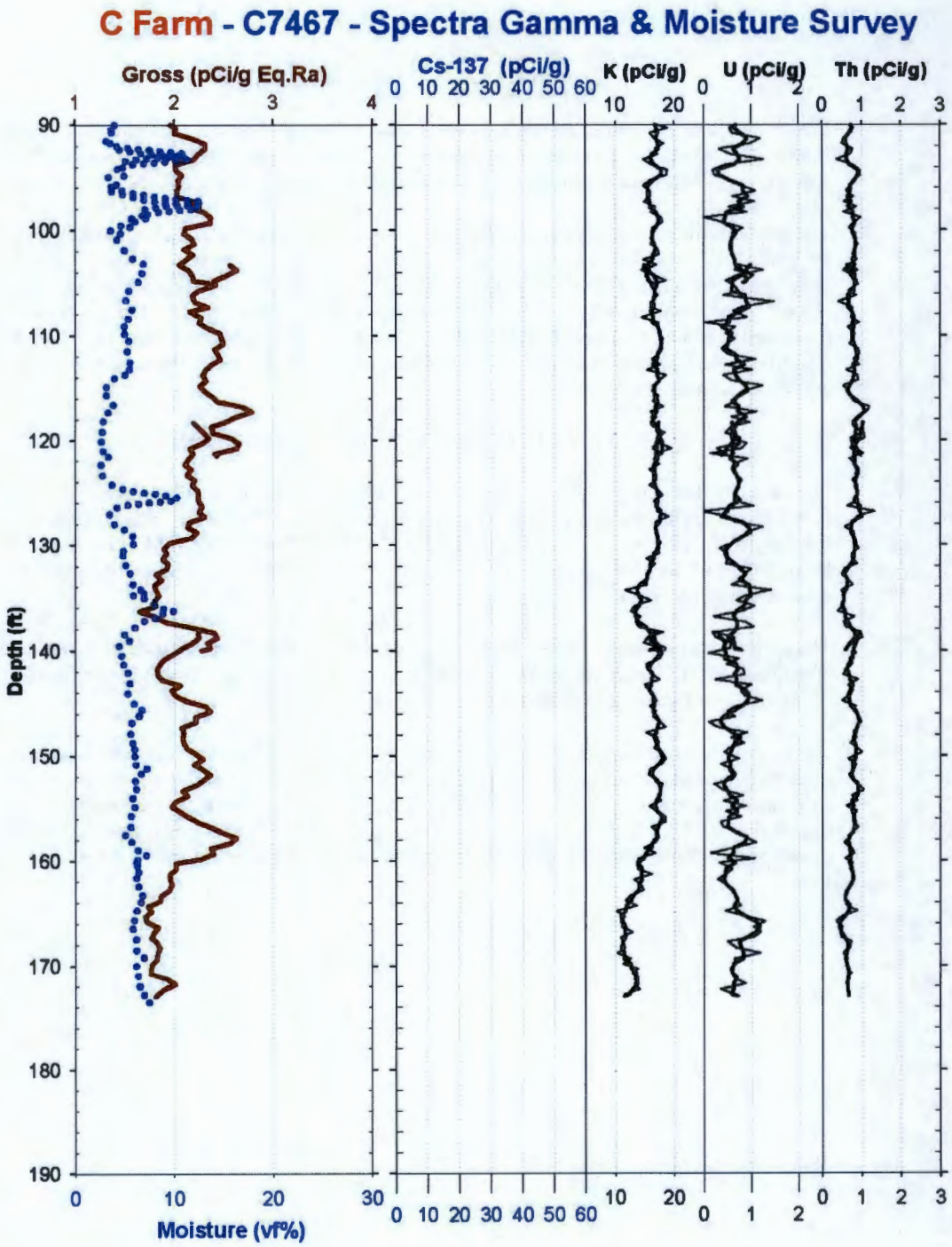
CALIBRATION CERTIFICATES

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

A-6


C Farm - C7467 - 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


C Farm - C7467 - 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-8

2 SPECTRAL GAMMA CALIBRATION

The objective of the gamma survey logs was to identify depth intervals with elevated gamma activity (i.e., Cs-137 at concentrations greater than 2 pCi/g). The BGO spectral survey (100 seconds per 0.5 ft) have a minimum detection level (MDL) of 1 pCi/g for Cs-137.

The spectral gamma scintillation detector uses a BGO crystal that is 2.54 cm [1 in.] diameter by 10.1 cm [4 in.] long. The gamma ray spectra with a measurement time of 100 seconds were collected each 0.15 m (0.5 ft) from the bottom of the probehole to the surface. The spectra records gamma ray energies between 200 and 2800 keV in a 256 channel spectra. Spectra were processed to quantify the concentration of the naturally occurring radionuclides (K, U, & Th) and quantify Cs-137 when present above the minimum detection threshold. The calibration certificate is shown in Figure 1.

3 NEUTRON MOISTURE CALIBRATION

The moisture detector measures the density of hydrogen (moisture) in subsurface soils. The units of measure are percent volume fraction (% vf) moisture. 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 calibration certificate for these two hole-sizes is presented in Figure 2.

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 3 shows the moisture calibration certificate for the 6.35 cm (2.5-in.) hole size.

The probehole moisture survey was collected at 0.61 m/min (2 ft/min) or slower. 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 (0.325 in.) Given that the probehole casing thickness is 0.94 cm (0.37 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 1. 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 for each model 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 0.37 inch wall thickness probe tubing.

The algorithm described in the document WHC-SD-EN-TI-293, Rev. 0, determines the coefficient analysis. Three energy windows are used for each potassium, uranium and thorium (K U & T), 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 procedures WHC-SD-EN-TI-293, "Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models" 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 2. 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 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, 3 for 6"casing and 3 for 8" 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 the document 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).

6" casing	8" 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 procedures WHC-SD-EN-TI-306, "Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration" 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

Figure 3. 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 6 and 8 inch ID casings. The Tank Farm Direct Push borehole is cased with a 2.5 inch OD iron casing. The calibration for the moisture response is a function of borehole diameter.

The coefficient generation is determined by the algorithm described in the document 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 2.5 inch borehole diameter.

2.51" borehole
a = .0002123
α = 2.010

The undersigned certifies that the analysis files are archived in the file "SD-Moist792_2009.zip" was 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

4 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.

Price, Randall, 2008, *Procedures: Calibration, Logging, Quality Assurance and Data Management*, Pacific Northwest Geophysics, Kennewick, Washington.

R. Randall 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.

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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 V09-002 **SAF TITLE** WMA C Sampling for CMS **REV** 3

PROJECT	WMA C		
PROGRAM/PROJECT TYPE	RCRA Closure CMS		
OPERABLE UNIT	TBD		
REQUESTER	SYDNOR, HA	**CHARGE CODES**	
TASK MANAGER	CONNELLY, MP	CHPRC Field Samplers	301483ES10
PROJECT COORDINATOR	WIDRIG, DL	Sample Management	301483ES30
ESTIMATED START DATE	2/17/2009	**SAMPLE AREA**	200 East
ESTIMATED COMPLETION DATE	1/1/2012	**MATRIX**	SOIL
ESTIMATED NUMBER OF SAMPLES	30		

SAMPLING ORGANIZATIONS

CHPRC Samplers

LABORATORY/PRICE_CODE/PRIORITY TURNAROUND/REQUIRED TURNAROUND/DATA DELIVERABLE

Primary / 222-S Lab Operations / 8P / 75 Days / 75 Days / Summary

SAF COMMENT

Revision 0 = Samples taken from UPR-200-E-81 identified DQO Site P
Revsion 3 = Samples taken from UPR-200-E-81 identified DQO Site P and Phase 2 Closure Sampling @ 241-C Tank Farm

222-S will transmit copies of all COCs to Mike Connelly.

All secondary analytes listed in RPP-Plan-3877 Tables 4-2 and 4-5 will be reported in the data package and electronically when the value is greater than the detection limit.

Quality Control parameters for constituents are listed in RPP-Plan-3877 Table 5-1.

Final data package should be a Format V.

Required detection limits for Radionuclide are listed in RPP-Plan-3877 Table 5-2.

Required detection limits for Non-Radionuclide are listed in RPP-Plan-3877 Table 5-3.

Target detection limits for Primary Radionuclides are listed in RPP-Plan-3877 Table 5-4.

Target detection limits for Primary Chemicals are listed in RPP-Plan-3877 Table 5-5.

SAF REVISION COMMENT

Revision 3 made to add " and Phase 2 Closure Sampling @ 241-C Tank Farm" to description of sample locations per Harold Sydnor 6/11/09
Revision 2 made to update volume needed for Radscreen at 222-S.
Revision 1 made to add an activity screen at 222-S.
Revision 0 = Samples taken from UPR-200-E-81 identified DQO Site P

COC COMMENT

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.

DATE OF PRINT 06/16/2009 SAF STATUS Revision Issued STATUS DATE 6/17/2009 2:00:00 P PAGE 1 of 3

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-002 **SAF TITLE** WMA C Sampling for CMS **REV** 3

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: SOIL**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
VOA - 5035/8260 (LOW LEVEL) (TF)	8260_VOA_GCMS	aGs* 5X40 mL	Lo-Full QC	Cool <-7C and >-20C	14 Days
1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene					
VOA - 5035/8260 (HIGH LEVEL) (TF)	8260_VOA_GCMS	aGs* 3X40 mL	Hi-Full QC	MEOH/Cool-6C	14 Days
1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene					
VOA - 5035/8260 (TCL) (TF)	8260_VOA_GCMS	aGs* 40 mL	Full QC	Cool-6C	14 Days
1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene					
Semi-VOA - 8270 Complete (TF)	8270_SVOA_GCMS	Liner 3X160 g	Full QC	Cool-6C	14/40 Days
1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine					
ICP Metals - 6010 (SW-846) (TF)	6010_METALS_ICP		Full QC		6 Months
Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc					
Mercury - 7471 - (CV) (TF)	7471_HG_CVAA		Full QC		28 Days
Mercury					
PCBs - 8082	8082_PCB_GC		Full QC		None
Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260					
TPH-Gasoline Range - WTPH-G	WTPH_GASOLINE		Full QC		14 Days
Total petroleum hydrocarbons - gasoline range					
TPH-Diesel Range - WTPH-D	WTPH_DIESEL		Full QC		14/40 Days
Total petroleum hydrocarbons - diesel range					
Pesticides - 8081 (TF)	8081_PEST_GC		Full QC		14/40 Days
2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene					
IC Anions - 9056	9056_ANIONS_IC		Full QC		28 Days/48 Hours
2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate					
300.7_AMMONIUM (TF)	300.7_CATIONS_IC		Full QC		28 Days
Nitrogen in ammonium					
Sulfide - 9215	9215_SULFIDE		Full QC		7 Days
Sulfide					

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Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-002 **SAF TITLE** WMA C Sampling for CMS **REV** 3

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: SOIL**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
Total Cyanide - 9014 (TF) Cyanide	9014_CYANIDE		Full QC		14 Days
pH (Soil) - 9045 pH Measurement	9045_PH		Full QC		ASAP
GAMMA ENERGY ANALYSIS (TF) Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155	GAMMA_GS		Full QC		6 Months
Actinides ICPMS (TF) Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238	RADISOTOPES_ICPMS		Full QC		6 Months
Americium-241 (TF) Americium-241	AMCMISO_EIE_PLT_AEA		Full QC		6 Months
I129_SEP_GEA (TF) Iodine-129	I129_SEP_GEA		Full QC		6 Months
C-14 Carbon-14	C14_LSC		Full QC		6 Months
CURIUM Curium-242, Curium-243, Curium-244	AMCMISO_EIE_PLT_AEA		Full QC		6 Months
H3 - TRITIUM Tritium	TRITIUM_DIST_LSC		Full QC		6 Months
Isotopic Plutonium Plutonium-238, Plutonium-239/240	PUISO_PLATE_AEA		Full QC		6 Months
Nickel-63 (TF) Nickel-63	NI63_LSC		Full QC		6 Months
Selenium-79 (TF) Selenium-79	SE79_SEP_IE_LSC		Full QC		6 Months
Strontium-89,90 – Sr-90 Strontium-90	SRISO_SEP_PRECIP_GPC		Full QC		6 Months
Rad Screen No CAS	RADSCREEN	G/P 60 mL	Full QC	None	6 Months

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

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Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-003 **SAF TITLE** WMA C Sampling for CMS - QC Sampling **REV** 1

PROJECT	WMA C		
PROGRAM/PROJECT TYPE	RCRA Closure CMS		
OPERABLE UNIT	TBD		
REQUESTER	SYDNOR, HA	**CHARGE CODES**	
TASK MANAGER	CONNELLY, MP	CHPRC Field Samplers	301483ES10
PROJECT COORDINATOR	WIDRIG, DL	Sample Management	301483ES30
ESTIMATED START DATE	2/17/2009	**SAMPLE AREA**	200 East
ESTIMATED COMPLETION DATE	1/1/2012	**MATRIX**	WATER
ESTIMATED NUMBER OF SAMPLES	10		

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

Revision 0 = Samples taken from UPR-200-E-81 identified DQO Site P
Revision 1 = Samples taken from UPR-200-E-81 identified DQO Site P and Phase 2 Closure Sampling @241-C Tank Farm

222-S will transmit copies of all COCs to Mike Connelly.

All secondary analytes listed in RPP-Plan-3877 Tables 4-2 and 4-5 will be reported in the data package and electronically when the value is greater than the detection limit.

Quality Control parameters for constituents are listed in RPP-Plan-3877 Table 5-1.

Final data package should be a Format V.

Required detection limits for Radionuclide are listed in RPP-Plan-3877 Table 5-2.

Required detection limits for Non-Radionuclide are listed in RPP-Plan-3877 Table 5-3.

Target detection limits for Primary Radionuclides are listed in RPP-Plan-3877 Table 5-4.

Target detection limits for Primary Chemicals are listed in RPP-Plan-3877 Table 5-5.

SAF REVISION COMMENT

Revision 0 = Samples taken from UPR-200-E-81 identified DQO Site P
Revision 1 = Samples taken from UPR-200-E-81 identified DQO Site P and Phase 2 Closure Sampling @241-C Tank Farm - per Harold Sydnor 6/11/09

COC COMMENT

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Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-003 **SAF TITLE** WMA C Sampling for CMS - QC Sampling **REV** 1

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: WATER**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
TPH-Diesel Range - WTPH-D	WTPH_DIESEL	aG 1000 mL	Full QC	HCl to pH <2/Cool~4C	14/40 Days
Total petroleum hydrocarbons - diesel range					
TPH-Gasoline Range - WTPH-G	WTPH_GASOLINE	aGs* 40 mL	Full QC	HCl to pH <2/Cool~4C	14 Days
Total petroleum hydrocarbons - gasoline range					
VOA - 8260 (TCL) (TF)	8260_VOA_GCMS	aGs* 3X40 mL	Full QC	HCl or H2SO4 to pH <2/Cool~4C	14 Days
1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene					
Semi-VOA - 8270 Complete (TF)	8270_SVOA_GCMS	aG 4X1000 mL	Full QC	Cool~4C	7/40 Days
1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine					
ICP Metals - 6010 (SW-846) (TF)	6010_METALS_ICP	G/P 500 mL	Full QC	HNO3 to pH <2	6 Months
Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc					
Mercury - 7470 - (CV) (TF)	7470_HG_CVAA	G 500 mL	Full QC	HNO3 to pH <2	28 Days
Mercury					
PCBs - 8082	8082_PCB_GC	aG 3X1000 mL	Full QC	Cool~4C	None
Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260					
Pesticides - 8081 (TF)	8081_PEST_GC	aG 2X1000 mL	Full QC	Cool~4C	7/40 Days
2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, Hexachlorobenzene					
IC Anions - 9056	9056_ANIONS_IC	G/P 250 mL	Full QC	Cool~4C	28 Days/48 Hours
2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate					
Sulfide - 9215	9215_SULFIDE	G/P 500 mL	Full QC	ZnAc+NaOH to pH > 9/Cool~6C	7 Days
Sulfide					
Total Cyanide - 9014 (TF)	9014_CYANIDE	G/P 60 mL	Full QC	NaOH to pH >= 12/Cool~4C	14 Days
Cyanide					
300.7_AMMONIUM (TF)	300.7_CATIONS_IC	G/P 250 mL	Full QC	H2SO4 to pH <2	28 Days
Nitrogen in ammonium					
pH (Water) - 9040 (TF)	9040_PH	P 125 mL	Full QC	None	ASAP
pH Measurement					
GAMMA ENERGY ANALYSIS (TF)	GAMMA_GS	G/P 500 mL	Full QC	HNO3 to pH <2	6 Months
Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					

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Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V09-003 **SAF TITLE** WMAC Sampling for CMS - QC Sampling **REV** 1

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: WATER**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
Actinides ICPMS (TF)	RADISOTOPES_ICPMS	Nalgene 500 mL	Full QC	HNO3 to pH <2(ULTREX)	None
Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238					
Americium-241 (TF) Americium-241	AMCMISO_EIE_PLT_AEA	G/P 1000 mL	Full QC	HNO3 to pH <2	6 Months
I129_SEP_GEA (TF) Iodine-129	I129_SEP_GEA	G/P 4X1000 mL	Full QC	None	6 Months
C-14 Carbon-14	C14_LSC	G/P 2X1000 mL	Full QC	None	6 Months
CURIUM Curium-242, Curium-243, Curium-244	AMCMISO_EIE_PLT_AEA	G/P 1000 mL	Full QC	HNO3 to pH <2	6 Months
H3 - TRITIUM Tritium	TRITIUM_DIST_LSC	P 500 mL	Full QC	None	6 Months
Isotopic Plutonium Plutonium-238, Plutonium-239/240	PUISO_PLATE_AEA	G/P 1000 mL	Full QC	HNO3 to pH <2	6 Months
Nickel-63 (TF) Nickel-63	NI63_LSC	G/P 1000 mL	Full QC	HNO3 to pH <2	6 Months
Selenium-79 (TF) Selenium-79	SE79_SEP_IE_LSC	G/P 1000 mL	Full QC	HNO3 to pH <2	6 Months
Strontium-89,90 -- Sr-90 Strontium-90	SRISO_SEP_PRECIP_GPC	G/P 2X1000 mL	Full QC	HNO3 to pH <2	6 Months

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 06/16/2009 SAF STATUS Revision Issued STATUS DATE 6/17/2009 1:30:00 P PAGE 3 of 3

C-7466 C. Jarms HNF-N-576-3 pg 74
Date: 7-30-09
Weather: 102°F Sunny Wind 0-5mph
NCO's- Rosane, Rust Kauer
FWS.- Bill Clark
Drillers: Energy Solutions RWP CO-460 Rev 4
0700- Started TB sample B21733, V09-003-015, 222-S lab
0730- Started pre job sign in preparing for samples on C-7466.
0825- Completed sample Surface B211X8, V09-002-140
B211X9, V09-002-141 } 222-S labs
B215K8, V09-002-174
0830- Completed sample Surface-D B211Y0, V09-002-173
B215K9, V09-002-175 } 222-S labs
B21731, V09-002-181
1000- Completed I-001 @ 5'-7' B20XW6, V09-002-113
B20XW7, V09-002-114 } 222-S labs
B20XW8, V09-002-115
1038- Completed I-002 @ 10'-12' B20XW9, V09-002-116
B20XX0, V09-002-117 } 222-S labs
B20XX1, V09-002-118
1205- Completed I-003 @ 14'-16' B20XX2, V09-002-119
B20XX3, V09-002-120 } 222-S labs
B20XX4, V09-002-121
I-001 - 3 liners 100% full of soil, I-002, 1 liner 100% full of soil (due to lack of soil. I-003 - 2 1/3 full liners
Field reading on all samples were below background levels.
1315- Samples were delivered to 222-S labs per Blue Card # 5.

Last entry this Date 7-30-09 LJR

Larry Rosane 7-30-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 7-30-09/0700

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB1

LOGBOOK NO./PAGE HNF-N-376-3 P 74

WELL NAME C-7466

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kauer, Rosane, Rust

222-S V09-003-015

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21733	3 / 40mL / aGs*	825501	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

			TIME ON	TIME WATER	TIME PURGE	TIME SAMP	TIME OFF
PURGE RATE N/A	☐ gpm ☐ Lpm		N/A	N/A	N/A	0700	N/A
PURGE VOLUME REQUIRED N/A	☐ gal ☐ L						

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	53.6						
COND (µs/cm)							
TURB. (NTU)							
D.O. (mg/L)							
ORP (mV)							

Elk N/A 7-30-09

FIELD OBSERVATIONS

WEATHER 70°F 0 wind Inside

FIELD COMMENTS

N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY Ed Kauer (PRINT NAME) SIGN NAME DATE 7-30-09

CHECKED BY JM Smith (PRINT NAME) CHPRC SIGN NAME DATE JUL 31 2009

PRINTED BY LCSUMNER ON 7/28/2009 2:52:21 PM

A-6004-700 (REV.0)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-003-015 PAGE 1 OF 1

COLLECTOR: KAUER, ROSANE, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: WMA-C Tank Farm - TB1	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 Pg 74	ACTUAL SAMPLE DEPTH: N/A	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 7P

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)

S3°

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HCl or H2SO4 to pH <2/Cool--4C
TYPE OF CONTAINER	AG1
NO. OF CONTAINER(S)	5
VOLUME	40ml
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE / SAMPLE TIME	
B21733	WATER	7-30-09 0700	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	7-30-09 1315	[signature] RJ Steele	7-30-09 1315
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

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 07-30-09/0825

SAF NO.(S) V09-002

LOCATION C7466; Surface

LOGBOOK NO./PAGE HNF-N-576-3 PG 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 0-1 ft m

BOTTOM OF CASING (bgs) N/A ft m

BOTTOM OF BOREHOLE (bgs) N/A ft m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR KAUER, RUSS, ROSANE

222-S V09-002-140

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211X8	1 / 40mL / aGs*	7312110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-141

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211X9	5 / 40mL / aGs*	5145110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211X9	3 / 40mL / aGs*	7312110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

222-S V09-002-174

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B215K8	2 / 500mL / G/P	0241034	~~Cool~6C~~/Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

PCD 7/29/09

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 7-30-09/0825

SAF NO.(S) V09-002

LOCATION C7466; Surface

LOGBOOK NO./PAGE HNF-N-576-3 PG 74

WELL NAME

WELL ID

ACTUAL DEPTH 0.1 ft m

BOTTOM OF CASING (bgs) N/A ft m

BOTTOM OF BOREHOLE (bgs) N/A ft m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust, Rosane

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

FIELD OBSERVATIONS

WEATHER 82°F. 0-5 mph wind Sunny

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Dillon FWS. #5

SAMPLES SURVEYED BY RCT ☑ YES ☐ NO

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

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Ed Kauer (PRINT NAME) (SIGN NAME) 7-30-09 (DATE)

CHECKED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 7-30-09 (DATE)

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A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-140 — PAGE 1 OF 1

COLLECTOR Knoll, Rust, Rosette	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7466; Surface	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 PS74	**ACTUAL SAMPLE DEPTH** 0-1	**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	Cool~6C
TYPE OF CONTAINER	aGa*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211X8	SOIL	07-30-09	0825

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kacer / [signature]	7-30-09 / 1315	[signature]	7-30-09 1315

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

☐ ORIGINAL

LABORATORY SECTION RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A 6001-619(01/06)

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-141 — PAGE 1 OF 2

COLLECTOR: Kauck, Rust, Rustace	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days		
SAMPLING LOCATION: C7466; Surface	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
AIR QUALITY: –			
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576 3 PS74	ACTUAL SAMPLE DEPTH: 0-1	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 <-7C and >-20C	MECH/Cool~6 C
TYPE OF CONTAINER	aGs*	aGs*
NO. OF CONTAINER(S)	5	3
VOLUME	40ml	40ml
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B211X9	SOIL	07-30-09	08:25	✓	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E.L. Kauck / [illegible]	7-30-09 1315	R.H. Steele	7-30-09 1315
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

ORIGINAL

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

A 8003 618(09/06)

Washington River Protection Solutions | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | **V09-002-141** | **PAGE 2 OF 2**

COLLECTOR	**COMPANY CONTACT**	**TELEPHONE NO.**	**PROJECT COORDINATOR**	**PRICE CODE** 8P
Kauss, Rust, Rosine	SYDNOR, HA	373-3967	WIDRIG, DL	**DATA TURNAROUND**
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** —
C7466; Surface	WMA C Sampling for CMS		V09-002	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**
	HNF-N-576 3 Pg 74	0-1	301483ES10	GOVERNMENT VEHICLE
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	
222-S Lab Operations	N/A		N/A	

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A. ** All VOA samples will be collected using EPA Method 5035A
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. Those suffixes should not be included as part of the sample ID reported in the final data packages
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A 6003-618(01/06)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C7461 Surface

Sampler Initials and Date: 7-30-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B211X9	K	No Methanol		33.2	39.1	5.9	No Methanol
B211X9	L			32.0	37.8	5.8	
B211X9	M			32.2	38.3	6.1	
B211X9	N			31.7	38.0	6.3	
B211X9	P			31.5	37.3	5.8	
B211X9	W	37.8	37.6	38.0	43.6	5.6	10
B211X9	X	37.6	37.4	37.7	43.5	5.8	10
B211X9	Y	37.7	37.6	37.9	44.0	6.1	10
B211X8	*	37.6	37.4	37.7	37.7	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-174 PAGE 1 OF 2

COLLECTOR Kause, Rust, Rosane	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7466; Surface	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002
ICE CHEST NO.	**FIELD LOGBOOK NO.** PS 74 1INF-N-576-3	**ACTUAL SAMPLE DEPTH** C-1	**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	8CB 7/21/09 ~~Cool~~ 6C
TYPE OF CONTAINER	U/P
NO. OF CONTAINER(S)	2
VOLUME	500mL
SAMPLE ANALYSIS	SEE STEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**
B215K8	SOIL	7-30-09	08 25 ✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kause	7-30-09 1315	[illegible]	7-30-09 1315

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-619(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-174	PAGE 2 OF 2
COLLECTOR Kaye, Rust, Rosane	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7466; Surface	PROJECT DESIGNATION WMA C Sampling for CMS		SAP NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. 5574 HNF-N-576-3	ACTUAL SAMPLE DEPTH 0-1	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

** All VOA samples will be collected using EPA Method 5035A.

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)Semi-VOA - 8270 Complete (TF) (1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) (Mercury) PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260) TPH-Gasoline Range - WTPH-G (Total petroleum hydrocarbons - gasoline range) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range) Pesticides - 8081 (TF) (2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) (Nitrogen in ammonium) Sulfide - 9215 (Sulfide) Total Cyanide - 9014 (TF) (Cyanide) pH (Soil) - 9045 (pH Measurement) GAMMA ENERGY ANALYSIS (TF) (Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Actinides ICPMS (TF) (Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238) Americium-241 (TF) (Americium-241) I129_SEP_GEA (TF) (Iodine-129) C-14 (Carbon-14) CURIUM (Curium-242, Curium-243, Curium-244) H3 - TRITIUM (Tritium) Isotopic Plutonium (Plutonium-238, Plutonium-239/240) Nickel-63 (TF) (Nickel-63) Selenium-79 (TF) (Selenium-79) Strontium-89,90 -- Sr-90 (Strontium-90)

Original

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 07-30-09/0830

SAF NO.(S) V09-002

LOCATION C7466; Surface-D

LOGBOOK NO./PAGE HNF-N-576-3 Pg 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 0-1 ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kaus, Rust, Rosane

222-S V09-002-173

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y0	5 / 40mL / aGs*	814011O	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211Y0	3 / 40mL / aGs*	814011O	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

222-S V09-002-175

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B215K9	2 / 500mL / G/P	029038	PCB ~~Cool~4C~~/Cool~6C 7/29/09	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-181

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21731	1 / 40mL / aGs*	814011O	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 7-30-09 / 0830 ~~0820~~ 7-31-09

SAF NO.(S) V09-002

LOCATION C7466; Surface-D

LOGBOOK NO./PAGE HNF-N-576-3 Pg

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 0-1 [ ]ft [ ]m

BOTTOM OF CASING (bgs) N/A [ ]ft [ ]m

BOTTOM OF BOREHOLE (bgs) N/A [ ]ft [ ]m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kaney, Rust, Rosane

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

FIELD OBSERVATIONS

WEATHER 82°F 0-5 mph wind SUNNY

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 #5

IS SRS PROVIDED AND COMPLETE [✓] YES [ ] NO

RECORDED BY Ed Kaney (PRINT NAME) [signature] (SIGN NAME) 7-30-09 (DATE)

CHECKED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 7-30-09 (DATE)

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A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-173 PAGE 1 OF 2

COLLECTOR: Kruger, Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7466; Surface-D	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG 74	ACTUAL SAMPLE DEPTH: 0-1	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	Cool < 7C and >-20C	PREOM/Cool-6 °C
TYPE OF CONTAINER	aOz*	aGs*
NO. OF CONTAINER(S)	5	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211Y0	SOIL	7-30-09	0830

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
F. Kruger, Elm Blanco	7-30-09 1315	[illegible]	7-30-09 1315
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

☐ ORIGINAL

LABORATORY SECTION: RECEIVED BY | TITLE | DATE/TIME

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD | DISPOSED BY | DATE/TIME

A-6089-611(01/08)

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-173 — PAGE 2 OF 2

COLLECTOR Knox, Rust, Rustane	**COMPANY CONTACT** SYONOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7466; Surface-D	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 B574	**ACTUAL SAMPLE DEPTH** 0 - 1	**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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A 6003 618(01/06)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: L Farm C T466 Surface - D

Sampler Initials and Date: 7-30-09 [illegible]

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21140	K	No Methanol		31.5	41.6	10.1	No Methanol
B21140	L			32.9	39.2	6.3	
B21140	M			33.1	39.1	6.0	
B21140	N			32.6	41.4	5.4	
B21140	P			32.7	39.3	6.6	
B21140	W	38.2	38.1	38.4	44.3	5.9	10
B21140	X	39.2	39.1	39.5	45.8	6.3	10
B21140	Y	38.4	38.3	38.6	44.9	6.3	10
B21731	*	39.0	38.8	39.2	39.2	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-175

PAGE 1 OF 2

COLLECTOR: Kautz, Rust, Rosine	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; Surface-D	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576 3	8574 ACTUAL SAMPLE DEPTH: 0-1	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: 75 Days / 75 Days

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	PUB 7/29/09 ~~Cool-4C/Cool~~ 4C
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	2
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B215K9	SOIL	7-30-09	0830 ✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kaper	7-30-09 1315	R Stock R Steele	7-30-09 1315

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

☐ ORIGINAL

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** | V09-002-175 | PAGE 2 OF 2

COLLECTOR Kaur, Rust, Rosine	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DI	**PRICE CODE** 8P	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C7466, Surface D	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY**	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576 3 B374	**ACTUAL SAMPLE DEPTH** 0-1	**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

** All VOA samples will be collected using EPA Method 5035A
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample
(1)Semi VOA - 8270 Complete (TF) (1,2,4-Trichlorobenzene, 1,2 Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2 Nitrophenol, 3 Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz(a,h)anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) (Mercury) PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260) TPH Gasoline Range - WTPH G (Total petroleum hydrocarbons - gasoline range) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range) Pesticides - 8081 (TF) (2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4' DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) (Nitrogen in ammonium) Sulfide - 9215 (Sulfide) Total Cyanide - 9014 (TF) (Cyanide) pH (Soil) - 9045 (pH Measurement) GAMMA ENERGY ANALYSIS (TF) (Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Actinides ICPMS (TF) (Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238) Americium-241 (TF) (Americium-241) I129_SEP_GEA (TF) (Iodine-129) C-14 (Carbon-14) CURIUM (Curium-242, Curium-243, Curium-244) H3 - TRITIUM (Tritium) Isotopic Plutonium (Plutonium-238, Plutonium-239/240) Nickel-63 (TF) (Nickel-63) Selenium-79 (TF) (Selenium-79) Strontium-89,90 - Sr-90 (Strontium-90)

ORIGINAL

A-6003-618 (01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-181 PAGE 1 OF 1

COLLECTOR: Knell, Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; Surface-D	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 P374	ACTUAL SAMPLE DEPTH: 0-1	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: 75 Days / 75 Days

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-8C
TYPE OF CONTAINER	VOA*
NO. OF CONTAINER(S)	1
VOLUME	40ml
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21731	SOIL	07-30-09	0830	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Knell, Elmer Rust	7-30-09 1315	Rosane Ristede	7-30-09 1315
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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A 0003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 7-30-09/1000

SAF NO.(S) V09-002

LOCATION C7466; I-001

LOGBOOK NO./PAGE HNF-N-576-3 PG 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 5-7 ft m

BOTTOM OF CASING (bgs) 5' ft m

BOTTOM OF BOREHOLE (bgs) 7' ft m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kaull, Rust, Rosane

222-S V09-002-113

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XW6	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-114

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XW7	1 / 40mL / aGs*	S14C110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-115

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XW8	5 / 40mL / aGs*	S14C110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B20XW8	3 / 40mL / aGs*	S14C110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 7-30-09/1000

SAF NO.(S) V09-002

LOCATION C7466; I-001

LOGBOOK NO./PAGE HNF-N-576-3 pg 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 5-7 [✓] ft [ ] m

BOTTOM OF CASING (bgs) 5 [✓] ft [ ] m

BOTTOM OF BOREHOLE (bgs) 7 [✓] ft [ ] m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauck, Rust, Rosane

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, Some Rock moist

FIELD OBSERVATIONS

WEATHER 102°F 0-5 mph wind Sunny

FIELD COMMENTS N/A

SUPPORT PERSONNEL HPT, Drillers, FLUS.

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 Kauck (PRINT NAME) [signature] (SIGN NAME) 7-30-09 (DATE)

CHECKED BY Larry Rosane (PRINT NAME) [signature] (SIGN NAME) 7-30-09 (DATE)

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A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST — V09-002-113 — PAGE 1 OF 2

COLLECTOR: Kaiser, Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; I-001	PROJECT DESIGNATION: WMA C Sampling for CHS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: 5-7	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: 75 Days / 75 Days

MATRIX*: A=Air, DI=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	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
820XW6	SOIL	07-30-09	1000 ✓

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Eckwin, Eckwin	7-30-09 1315	N/L Lab	7-30-09 1515
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

☐ ORIGINAL

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

A 6003 610(01/06)

Washington River Protection Solutions | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | **V09-002-113** | **PAGE 2 OF 2**

COLLECTOR Kause, Rust, Rosane	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** BP	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C7466; 1-001	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY**	
ICE CHEST NO.	**FIELD LOGBOOK NO.** 11NF-N-576-3 B74	**ACTUAL SAMPLE DEPTH** 5-7	**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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) (1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-); Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) (Mercury) PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260) TPH-Gasoline Range - WTPH-G (Total petroleum hydrocarbons - gasoline range) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range) Pesticides - 8081 (TF) (2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) (Nitrogen in ammonium) Sulfide - 9215 (Sulfide) Total Cyanide - 9014 (TF) (Cyanide) pH (Soil) - 9045 (pH Measurement) GAMMA ENERGY ANALYSIS (TF) (Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Actinides ICPMS (TF) (Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238) Americium-241 (TF) (Americium-241) I129_SEP_GEA (TF) (Iodine-129) C-14 (Carbon-14) CURIUM (Curium-242, Curium-243, Curium-244) H3 - TRITIUM (Tritium) Isotopic Plutonium (Plutonium-238, Plutonium-239/240) Nickel-63 (TF) (Nickel-63) Selenium-79 (TF) (Selenium-79) Strontium-89,90 -- Sr-90 (Strontium-90)

ORIGINAL

A-6003 818(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-114

PAGE 1 OF 1

COLLECTOR: Kauer, Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7466; I-001	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PS 78	ACTUAL SAMPLE DEPTH: 5' to 7'	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-6C
TYPE OF CONTAINER	4Oz*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20XW7	SOIL	07-30-09	1000

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Elkauer, [illegible]	DATE/TIME: 7-30-09 1315	RECEIVED BY/STORED IN: [illegible]	DATE/TIME: 7-30-09 1315
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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

V09-002-115 PAGE 1 OF 2

COLLECTOR: Kaiser, Rust, Rosature	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; I-001	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG 74	ACTUAL SAMPLE DEPTH: 5' to 7'	CDA: 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: 75 Days / 75 Days

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 <-7C and >-70C	HNO3/Cool<-6 °C
TYPE OF CONTAINER	GGs*	GGs*
NO. OF CONTAINER(S)	5	5
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS*	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B20XW8	SOIL	7-30-05	1000	✓	✓

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E. Kaiser	7-30-05 1315	R. Eagle	7-30-05 1315
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

ORIGINAL

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

A 6083-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-115 PAGE 2 OF 2

COLLECTOR Kavel, Rust, Rosano	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7466; I-001	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3	**ACTUAL SAMPLE DEPTH** 5 to 7	**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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

ORIGINAL

A-6003 818(01/06)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C7466 I-001

Sampler Initials and Date: 7-30-09 K

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B20XW8	K	No Methanol		35.2	42.6	7.4	No Methanol
B20XW8	L			31.9	37.8	5.9	
B20XW8	M			32.4	38.9	6.5	
B20XW8	N			32.0	37.2	5.2	
B20XW8	P			32.4	38.0	5.6	
B20XW8	W	38.2	38.0	33.4	43.7	5.3	10
B20XW8	X	38.8	38.7	39.1	45.3	6.2	10
B20XW8	Y	39.0	38.9	39.2	45.3	6.1	10
B20XW7	*	39.1	39.0	39.4	39.4	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 7-30-09/1038

SAF NO.(S) V09-002

LOCATION C7466, 1-002

LOGBOOK NO./PAGE HNF-N-576 3 Pg 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 10-12 ~~ft~~ m

BOTTOM OF CASING (bgs) 10 ~~ft~~ m

BOTTOM OF BOREHOLE (bgs) 12 ~~ft~~ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust, Rosane

222-S V09-002-116

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XW9	1 / 160g / Liner 7-30-09	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-117

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XX0	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-118

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XX1	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B20XX1	3 / 40mL / aGs*	5140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 7-30-09/1038

SAF NO.(S) V09-002

LOCATION C7466; I-002

LOGBOOK NO./PAGE HNF-N-576-3 PG 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 10'10/12 [✓] ft [ ] m

BOTTOM OF CASING (bgs) 10' [✓] ft [ ] m

BOTTOM OF BOREHOLE (bgs) 12 [ ] ft [ ] m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust, Rosane

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 Sand some Rocks

FIELD OBSERVATIONS

WEATHER 102°F 0-5 mph wind Sunny

FIELD COMMENTS Only 1 Liner Full, (Due to lack of soil)

SUPPORT PERSONNEL Hrt, 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 E. Kauer (PRINT NAME) (SIGN NAME) 7-30-09 (DATE)

CHECKED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 7-30-09 (DATE)

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A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-116 — PAGE 1 OF 2

COLLECTOR Kause, Rust, Rosane	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7466; 1-002	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 (P574)	**ACTUAL SAMPLE DEPTH** 10' to 12'	**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** — **METHOD OF SHIPMENT** GOVERNMENT VEHICLE — **DATA TURNAROUND** 75 Days / 75 Days

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)

75

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	100g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20XW9	SOIL	7-30-09	1038

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kause, [signature]	7-30-09 1315	R Hilbert [signature]	7-30-09 1315

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

Only 1 Liner Full

ORIGINAL

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

A-6000 (10/01/04)

Washington River Protection Solutions | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | **V09-002-116** | **PAGE 2 OF 2**

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
KAUER, RUST, RESANE	SYDNOR, HA	373-3967	WIDRIG, DL		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY**	75 Days / 75 Days
C7466; 1-002	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-N-576-3 PS74	10-12'	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations	N/A		N/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) (1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) (Mercury) PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260) TPH-Gasoline Range - WTPH-G (Total petroleum hydrocarbons - gasoline range) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range) Pesticides - 8081 (TF) (2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) (Nitrogen in ammonium) Sulfide - 9215 (Sulfide) Total Cyanide - 9014 (TF) (Cyanide) pH (Soil) - 9045 (pH Measurement) GAMMA ENERGY ANALYSIS (TF) (Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Actinides ICPMS (TF) (Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238) Americium-241 (TF) (Americum-241) I129_SEP_GEA (TF) (Iodine-129) C-14 (Carbon-14) CURIUM (Curium-242, Curium-243, Curium-244) H3 - TRITIUM (Tritium) Isotopic Plutonium (Plutonium-238, Plutonium-239/240) Nickel-63 (TF) (Nickel-63) Selenium-79 (TF) (Selenium-79) Strontium-89,90 -- Sr-90 (Strontium-90)

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-117

COLLECTOR: Kruse, Rust, Rusane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7466; I-002	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: PS 7 y 10' to 12'	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–6C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20XX0	SOIL	7-30-09	1038

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Kruse/	DATE/TIME: 7-30-09 1315	RECEIVED BY/STORED IN:	DATE/TIME: 7-30-09 1315
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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

ORIGINAL

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

V09-002-118

COLLECTOR: Kruer, Rust, Rosane

SAMPLING LOCATION: C7466; 1-002

ICE CHEST NO.:

SHIPPED TO: 222-S Lab Operations

COMPANY CONTACT: SYDNOR, HA

TELEPHONE NO.: 373-3967

PROJECT DESIGNATION: WMA C Sampling for CMS

FIELD LOGBOOK NO.: HNF-N-576-3 PS 74

ACTUAL SAMPLE DEPTH: 10'-12'

OFFSITE PROPERTY NO.: N/A

PROJECT COORDINATOR: WIDRIG, DL

SAF NO.: V09-002

COA: 301483ES10

BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: BP

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	Cool <-7C and >-20C	HNO3/Cool~6 C
TYPE OF CONTAINER	60z*	60z*
NO. OF CONTAINER(S)	3	3
VOLUME	40ml.	40ml.
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B20XX1	SOIL	7-30-09	1038	✓	✓			

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kruer, [signature]	7-30-09 1315	[signature]	7-30-09 1315
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

☐ ORIGINAL

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

V09-002-118

COLLECTOR Knell, Rust, Rosane	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C7-166, I-007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY**	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 PS-74	**ACTUAL SAMPLE DEPTH** 10' to 12'	**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		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

A 6003 61(03/06)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm L7466 I-002

Sampler Initials and Date: 7-30-09 1038

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B20XX1	K	No Methanol		32.2	36.8	4.6	No Methanol
B20XX1	L			32.0	37.1	5.1	
B20XX1	M			32.1	37.6	5.5	
B20XX1	N			31.9	37.4	5.5	
B20XX1	P			32.0	37.4	5.4	
B20XX1	W	39.0	38.9	39.3	45.2	5.9	10
B20XX1	X	35.7	38.7	39.0	43.9	4.9	10
B20XX1	Y	39.3	39.2	39.6	46.3	6.7	10
B20XX0	*	38.9	38.8	39.2	39.2	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 7/30/09/1205

SAF NO.(S) V09-002

LOCATION C7466; I-003

LOGBOOK NO./PAGE HNF-N-576-3 Pg 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 14 to 16' ft m

BOTTOM OF CASING (bgs) 14 ft m

BOTTOM OF BOREHOLE (bgs) 16 ft m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kane, Rust, Rosane

222-S V09-002-119

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XX2	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-120

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XX3	1 / 40mL / aGs*	314050	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-121

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20XX4	5 / 40mL / aGs*	314010	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B20XX4	3 / 40mL / aGs*	314010	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 7-30-09/1205

SAF NO.(S) V09-002

LOCATION C7466; I-003

LOGBOOK NO./PAGE HNF-N-576-3 P57 4

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 14'/16' [✓] ft [ ] m

BOTTOM OF CASING (bgs) 14 [✓] ft [ ] m

BOTTOM OF BOREHOLE (bgs) 16 [✓] ft [ ] m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauk, Rust, Rosane

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 Sand Some Rocks

FIELD OBSERVATIONS

WEATHER 105°F 0-5 mph wind Sunny

FIELD COMMENTS ~~N/A~~ 2 1/3 Full Liners

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 Kauk (PRINT NAME) (SIGN NAME) 7-30-09 (DATE)

CHECKED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 7-30-09 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:16:15 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-119

COLLECTOR: Kauer, Rust, Rosane

COMPANY CONTACT: SYDNOR, HA

TELEPHONE NO.: 373-3967

PROJECT COORDINATOR: WIDRIG, DL

PRICE CODE: 8P

DATA TURNAROUND: 75 Days / 75 Days

SAMPLING LOCATION: C7466; I-003

PROJECT DESIGNATION: WMA C Sampling for CMS

SAF NO.: V09-002

AIR QUALITY: ☐

ICE CHEST NO.:

FIELD LOGBOOK NO.: HNF-N-576-3 Pg 74

ACTUAL SAMPLE DEPTH: 14' to 16'

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
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)

6 y 4

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C
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	
820XX2	SOIL	7-30-09	1205	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Eli Kauer	7-30-09 1315	RDS/ECLE	7-30-09 1315
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

☐ ORIGINAL

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** — V09-002-119 — PAGE 2 OF 2

COLLECTOR KANER, RUST, ROSANE	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7466; I-003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** 17	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 P574	**ACTUAL SAMPLE DEPTH** 14' to 16'	**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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G (Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE {Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM (Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-120

PAGE 1 OF 1

COLLECTOR: KAUSR, RUST, ROSANE	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days		
SAMPLING LOCATION: C7466; 1-003	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 P374	ACTUAL SAMPLE DEPTH: 14' to 16'	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~6C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B20XX3	SOIL	7-30-09	1203	✓					

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	7-30-09 1315	[signature]	7-30-09 1315

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 503SA.

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)VOA - 5035/8260 (TCL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

ORIGINAL

LABORATORY SECTION — RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION — DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A-6001-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-121 PAGE 1 OF 2

COLLECTOR: Kruse, Rust, Rosque	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7466; 1-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 Pg 74	ACTUAL SAMPLE DEPTH: 14' to 16'	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	Cool >-20C and <-70C	MTOH/Cool <-6 °C
TYPE OF CONTAINER	aGs*	aGs*
NO. OF CONTAINER(S)	3	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B20XX4	SOIL	7-30-09	1205	✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kruse, [signature]	7-30-09 1315	[signature] R/S/Geele	7-30-09 1315
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

☐ Original

LABORATORY SECTION — RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION — DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A 6001 618(01/06)

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-121 — PAGE 2 OF 2

COLLECTOR Kauer, Rust, Rosmore	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C7466; 1.003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY**	
ICE CHEST NO.	**FIELD LOGBOOK NO.** 15 74 HNFN-576-3	**ACTUAL SAMPLE DEPTH** 14' to 16'	**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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A 6003 618(01/09)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C7466 I-003

Sampler Initials and Date: 7-30-09 R

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B20XX4	K	No Methanol		31.5	39.0	7.5	No Methanol
B20XX4	L			32.7	38.7	6.0	
B20XX4	M			31.6	37.5	5.9	
B20XX4	N			31.5	37.4	5.9	
B20XX4	P			31.5	36.9	5.4	
B20XX4	W	38.2	38.1	38.5	42.7	4.2	10
B20XX4	X	38.2	38.2	38.6	43.6	5.0	10
B20XX4	Y	38.9	38.8	39.2	43.8	4.6	10
B20XX3	*	38.2	38.1	38.4	38.4	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

»»----------»» *S&GRP* ««----------««

C- 7466 C- Farms HNF-N-576-3 pg 75
Date - 8-3-09

Weather 85° Sunny Wind 0-5 mph

NCO's - Rosane, Rust, Kauer
FWS. - Bill Clark
Drillers - Energy Solutions RWP CO-460 Rev 6
0700- Started pre job sign in preparing for sample I-004
0745- Completed TB2 B21734, V09-003-016
0850- Completed sample I-004 @ 43.5'-45.5'
B20XX5, V09-002-122
B20XX6, V09-002-123 } 222-S labs
B20XX7, V09-002-124
1037- Completed EB for I-005 27 bottle set B1YY17, V09-003-014
I-004 3 liners 100% full of soil, Field reading on all samples did not exceed background levels.
1400- All samples were delivered to 222-S labs per Blue Card #5.

Last entry this Date 8-3-09 LR

Larry Rosane 8-3-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8-3-09/0745

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB2

LOGBOOK NO./PAGE HNF-N-576-3 PG 75

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kauer

222-S V09-003-016

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21734	3 / 40mL / aGs*	825501	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

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	0745	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)								

EK 8-3-09

FIELD OBSERVATIONS

WEATHER Inside 80°F

FIELD COMMENTS N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY E. Kauer (PRINT NAME) — (SIGN NAME) — 8-3-09 (DATE)

CHECKED BY LD Spicer CHPRC (PRINT NAME) — Lynn D Spicer (SIGN NAME) — DATE AUG 06 2009

PRINTED BY LCSUMNER ON 7/28/2009 2:52:26 PM

A-6004-700 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-003-016	PAGE 1 OF 1

COLLECTOR: KAUER	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WEBBER, DL	PRICE CODE: 7P; AIR QUALITY: ☐	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: WMA-C Tank Farm - TB2	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003		
ICE CHEST NO.	FIELD LOGBOOK NO.: KNF-N-576-3 Pg 75	ACTUAL SAMPLE DEPTH: N/A	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		

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	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGe*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21734	WATER	8-3-09	0745	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	8-3-09 1400	[signature]	8-3-09 1400

SPECIAL INSTRUCTIONS

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6005-618(01/98)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 **OF** 2

DATE/TIME 8-3-09/0850

SAF NO.(S) V09-002

LOCATION C7466; 1-004

LOGBOOK NO./PAGE HNF-N-576-3 B75

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 43.5-45.5 ☑ft ☐m

BOTTOM OF CASING (bgs) 43.5 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 45.5 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 **TOTAL NUMBER OF CHAINS** 3 **COLLECTOR** Kauer, Rust, Rosane

222-S V09-002-122

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20X5	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-123

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20X6	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-124

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B20X7	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B20X7	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME

SAF NO.(S) V09-002

LOCATION C7466; I-004

LOGBOOK NO./PAGE HNF-N-576-3 PS 75

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 43.5-45.5 ☑ ft ☐ m

BOTTOM OF CASING (bgs) 43.5 ☑ ft ☐ m

BOTTOM OF BOREHOLE (bgs) 45.5 ☑ ft ☐ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust, Rosane

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-812 ☐ 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 Sand some Rocks

FIELD OBSERVATIONS

WEATHER 85°F 0-5 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 #5

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Ed Kauer (PRINT NAME) (SIGN NAME) 8-3-09 (DATE)

CHECKED BY B.G. Orth (PRINT NAME) (SIGN NAME) 8/5/09 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:16:22 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-122 PAGE 1 OF 2

COLLECTOR Kauer, Rust, Rosane	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P
SAMPLING LOCATION C7466; I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 (PS75)	**ACTUAL SAMPLE DEPTH** 43.5-45.5	**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	

DATA TURNAROUND 75 Days / 75 Days

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)

22DS20040574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	100g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20XX5	SOIL	8-7-09	0850 ✓
S09V200954 A			
S09V200955 B			
S09V200956 C			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer / [signature]	8-7-09 1400	[signature] / RK Kisele	8-7-09 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

ORIGINAL

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

A-6003-418(01/06)

✓SDT 8/10/

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-122 | PAGE 2 OF 2

COLLECTOR Knick, Rust, Rasare	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7466; I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 PS75	**ACTUAL SAMPLE DEPTH** 43.5 to 45.5	**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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} 1129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

☐ ORIGINAL

A-6083-618(01/06)

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-123 — PAGE 1 OF 1

COLLECTOR: Kayse Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7466; I-004	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	Pg 75 ACTUAL SAMPLE DEPTH: 43.5 to 44.5	COA: 301483E510
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)

2225-20090574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B20XX6	SOIL	08-03-09	0850 ✓
509VP00953			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Clauer / [signature]	8-3-09 1400	[signature] RKSteele	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

V09-002-124

PAGE 1 OF 2

COLLECTOR: Kayser, Rust, Rosane	COMPANY CONTACT: SYONOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7466; I-004	PROJECT DESIGNATION: WMA C Sampling for CNS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: P375	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, DI=Drum Liquids, DS=Drum Solids, I=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)

22S20090574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <-20C and >-30C	H2SO4/Cool-6 C
TYPE OF CONTAINER	aGs*	aGs*
NO. OF CONTAINER(S)	5	3
VOLUME	40ml	40ml
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B20XX7	SOIL	08-3-09	0850	✓	✓
309V000951	Lo				
309V000932	Hi				

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[illegible]	8-3-09 1400	[illegible] 225[illegible]	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

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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** | **V09-002-124** | **PAGE 2 OF 2**

COLLECTOR Kauer, Rust, Rusane	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7466; I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3	**ACTUAL SAMPLE DEPTH** 43.5 to 44.5	**CDA** 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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

ORIGINAL

A-6003 618(01/08)

S&GRP Operating Procedure	GRP-FS-04-G-030
	Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C 74.6 k J-004

Sampler Initials and Date: JK 8-03-09 0850

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B20XX7	K	No Methanol		31.7	41.0	9.3	No Methanol
B20XX7	L			32.1	38.1	6.0	
B20XX7	M			31.8	40.6	8.8	
B20XX7	N			32.7	39.6	6.9	
B20XX7	P			32.5	40.4	7.9	
B20XX7	W	39.9	39.9	40.2	47.2	7.0	10
B20XX7	X	38.0	38.0	38.4	45.3	6.9	10
B20XX7	Y	38.7	38.7	39.1	46.3	7.2	10
B20XX6	*	39.2	39.2	39.6	39.6	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

»»- »» *S&GRP* ««- ««

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 2

DATE/TIME 8-3-09/1037

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm -EB

LOGBOOK NO./PAGE HNF-N-576-3 PG 75

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 27 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kause

222-S V09-003-014

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B1YY17	3 / 40mL / aGs*	825501	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B1YY17	4 / 1000mL / aG	~~032283~~ ~~034295~~ 628650	Cool~4C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS
B1YY17	1 / 500mL / G/P	035789	HNO3 to pH <2	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
B1YY17	1 / 500mL / G	029918	HNO3 to pH <2	Mercury - 7470 - (CV) (TF) {Mercury}
B1YY17	3 / 1000mL / aG	028650	Cool~4C	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
B1YY17	2 / 1000mL / aG	028650	Cool~4C	SEE ITEM (5) IN SPECIAL INSTRUCTIONS
B1YY17	1 / 250mL / G/P	033588	Cool~4C	SEE ITEM (6) IN SPECIAL INSTRUCTIONS
B1YY17	1 / 500mL / G/P	035789	ZnAc+NaOH to pH > 9/Cool~6C	Sulfide - 9215 {Sulfide}
B1YY17	1 / 60mL / G/P	026609	NaOH to pH >= 12/Cool~4C	Total Cyanide - 9014 (TF) {Cyanide}
B1YY17	1 / 125mL / P	029572	None	pH (Water) - 9040 (TF) {pH Measurement}
B1YY17	4 / 1000mL / G/P	035913	None	I129_SEP_GEA (TF) {Iodine-129}
B1YY17	1 / 1000mL / G/P	032283	HNO3 to pH <2	SEE ITEM (7) IN SPECIAL INSTRUCTIONS
B1YY17	1 / 1000mL / G/P	035913	HNO3 to pH <2	Nickel-63 (TF) {Nickel-63}
B1YY17	1 / 1000mL / G/P	035913	HNO3 to pH <2	Selenium-79 (TF) {Selenium-79}
B1YY17	2 / 1000mL / G/P	035913	HNO3 to pH <2	Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

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A-6004-700 (REV.0)

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CNS - QC Sampling

PAGE 2 OF 2

DATE/TIME 8-3-05/1037

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm -EB

LOGBOOK NO./PAGE HNF-N-576-3 PG 75

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 27 TOTAL NUMBER OF CHAINS 1 COLLECTOR KAUSE

FIELD INFORMATION

			TIME ON	TIME WATER	TIME PURGE	TIME SAMP	TIME OFF
PURGE RATE	N/A	☐ gpm ☐ Lpm	N/A	N/A	N/A	1037	N/A
PURGE VOLUME REQUIRED	N/A	☐ gal ☐ L					

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 EEK 8-3-05

FIELD OBSERVATIONS

WEATHER 75°F Inside

FIELD COMMENTS

N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY Ed Kause PRINT NAME — SIGN NAME — DATE 8-3-05

CHECKED BY LD Spicer CHPRC PRINT NAME — SIGN NAME — DATE AUG 05 2009

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A-6004-700 (REV.0)

ORIGINAL

Washington River Protection Solutions | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | V09-003-014 | PAGE 1 OF 3

COLLECTOR: KAUER	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 7P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: WMA-C Tank Farm -EB	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling	SAF NO.: V09-003	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG75	ACTUAL SAMPLE DEPTH: N/A	COA: 3014B3ES10
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)

PRESERVATION	HCl or H2SO4 to pH <2/Cool-4C	Cool-4C	HNO3 to pH <2	HNO3 to pH <2	Cool-4C	Cool-4C	Cool-4C	ZnAc+NaOH to pH > 9/Cool-4C	NaOH to pH >= 12/Cool-4C	None
TYPE OF CONTAINER	aGs*	aG	G/P	G	aG	aG	G/P	G/P	G/P	P
NO. OF CONTAINER(S)	3	4	1	1	3	2	3	3	3	1
VOLUME	40mL	1000mL	500mL	500mL	1000mL	1000mL	250mL	500mL	60mL	125mL
SPECIAL HANDLING AND/OR STORAGE / SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Mercury - 7470 - (CV) (TT) (Mercury)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	SEE ITEM (6) IN SPECIAL INSTRUCTIONS	Sulfide 9215 (Sulfide)	Total Cyanide 9014 (TT) (Cyanide)	pH (Water) 9040 (TT) (pH Measurement)

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YY17	WATER	8-3-09	1037	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer/	8-3-09 1410	R Eldred R Steele	8-3-09 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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

☐ ORIGINAL

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

A-6003-418(01/08)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-014	PAGE 2 OF 3
COLLECTOR KAUER	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 7P	DATA TURNAROUND
SAMPLING LOCATION WMA-C Tank Farm -EB	PROJECT DESIGNATION WMA C Sampling for CMS - QC Sampling		SAP NO. V09-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. BS 75 HNF-N-576-3	ACTUAL SAMPLE DEPTH N/A	COA 3014836510	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

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine}
(3)ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc}
(4)PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260}
(5)Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4' DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, Hexachlorobenzene}
(6)IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-003-014 PAGE 3 OF 3

COLLECTOR: KAUER	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: WMA-C Tank Farm -EB	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003
ICE CHEST NO.	FIELD LOGBOOK NO.: 1575 HNF-N-576-3	ACTUAL SAMPLE DEPTH: N/A	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 7P

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	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2
TYPE OF CONTAINER	G/P	G/P	G/P	G/P	G/P
NO. OF CONTAINER(S)	4	1	1	1	2
VOLUME	1000mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	8129_SEP_HCA (TF) (Iodine-129)	SEE ITEM (7) IN SPECIAL INSTRUCTIONS	Nickel 63 (TF) (Nickel 63)	Selenium 79 (TF) (Selenium-79)	Strontium-89,90 - Sr-90 (Strontium 90)

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B1YY17	WATER	8-3-09	1037	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer	8-3-09 1400	Richard Rhinick	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

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

(7)Isotopic Plutonium (Plutonium-238, Plutonium-239/240)

ORIGINAL

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

A-6003-618(01/08)

C-7466 C-Farms HNF-N-576-3 pg 76
Date 8-4-09
Weather 103°F Sunny Wind 0-5mph
WCO's - Rosane Kaun, Rust
Drillers - Energy Solutions
FWS - Bill Clark RWP - CO-460 Rev 6
0700 - On site for pre job sign in preparing for sample
Completed TB, B21735, V09-003-017
0845 - Completed I-005 @ 84'-86'
B211W3, V09-002-125
B211W4, V09-002-126 } 222-S
B211W5, V09-002-127
1410 - Completed I-006 @ 109.5 - 111.5'
B211W6, V09-002-128
B211W7, V09-002-129 } 222-S
B211W8, V09-002-130
all liners 100% full of soil, Field reading were below back ground levels.
1500 - Samples were delivered to 222-S lab per Blue Card #5

Last entry this Date 8-4-09 TL

Larry Rosane 8-4-09

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-003-017	PAGE 1 OF 1

COLLECTOR: Rosane Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P; AIR QUALITY: ☐	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: WMA-C Tank Farm - TB3	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003		
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 76	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=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)

58°

SPECIAL HANDLING AND/OR STORAGE: ZC0G0573

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21735	WATER	8-4-09	0710	✓
509UC00850				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	8-4-09 / 1500	R.L. Steele R.L. Steele	8-4-09 1500

SPECIAL INSTRUCTIONS

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6003-618(01/00)

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8-4-09 / 0710

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB3

LOGBOOK NO./PAGE HNF-N-576-3 pg 76

WELL NAME C-7466

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Rosane, Rust

222-S V09-003-017

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21735	3 / 40mL / aGs*	HA 525501	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

			TIME ON	TIME WATER	TIME PURGE	TIME SAMP	TIME OFF
PURGE RATE	N/A	☐ gpm ☐ Lpm					
PURGE VOLUME REQUIRED	N/A	☐ gal ☐ L	N/A	N/A	N/A	N/A	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 SJR 8-4-09							

FIELD OBSERVATIONS

WEATHER 79°F Inside

FIELD COMMENTS

N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 8-4-09 (DATE)

CHECKED BY Ed Kaner (PRINT NAME) Ed Kaner (SIGN NAME) 8-4-09 (DATE)

PRINTED BY LCSUMNER ON 7/28/2009 2:52:29 PM

A-6004-700 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-4-09/0845

SAF NO.(S) V09-002

LOCATION C7466; 1-005

LOGBOOK NO./PAGE HNF-N-576-3 pg 76

WELL NAME N/A

WELL ID

ACTUAL DEPTH 84-86' ☑ft ☐m

BOTTOM OF CASING (bgs) 84' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 86' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Rosane, Rust

222-S V09-002-125

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211W3	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-126

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211W4	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-127

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211W5	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211W5	3 / 40mL / aGs*	8140118	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-4-09/0845

SAF NO.(S) V09-002

LOCATION C7466; I-005

LOGBOOK NO./PAGE HNF-N-576-3 pg 76

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 84'-86' ☑ft ☐m

BOTTOM OF CASING (bgs) 84' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 86' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Rosanne Rust

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.)]

Silt and Sand

FIELD OBSERVATIONS

WEATHER 83°F Sunny Wind 0-5 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT, Driller 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 Larry Rosanne (PRINT NAME) Larry Rosanne (SIGN NAME) 8-4-09 (DATE)

CHECKED BY Ed Knox (PRINT NAME) (SIGN NAME) 8-4-09 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:16:30 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-125 PAGE 1 OF 2

COLLECTOR: Roshne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7466; I-005	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 76	ACTUAL SAMPLE DEPTH: 84'-86'	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)

2225 ZCC90 574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-6C
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	
B211W3	SOIL	8-4-09	0845	✓
509V000 963	A			
964	B			
965	C			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	8-4-09 / 1800	RHSteele RHSteele	8.4.09 1500
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

ORIGINAL

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

A-6003-618(01/08)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-125 PAGE 2 OF 2

COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7466; 1-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAP NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 76	ACTUAL SAMPLE DEPTH: 84'-86'	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-418(01/08)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-126	PAGE 1 OF 1

COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3867	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7466; I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 76	ACTUAL SAMPLE DEPTH: 84-86	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)

222S 20090574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C
TYPE OF CONTAINER	40ml*
NO. OF CONTAINER(S)	1
VOLUME	40ml
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211W4	SOIL	8-4-09	0845 ✓
S09VC096Z			

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Romine Larry Romine	8-4-09 / 1500	R Steele R Steele	8-4-09 1500
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

** All VOA samples will be collected using EPA Method 503SA.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-818(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-127

COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7466; 1-005	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-376-3 pg 76	ACTUAL SAMPLE DEPTH: 84-86'	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)

53°

SPECIAL HANDLING AND/OR STORAGE: 222520090574

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool-6 C
TYPE OF CONTAINER	WGs*	WGs*
NO. OF CONTAINER(S)	3	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B211W5	SOIL	8-4-09	0845	✓	✓
SOQ VOA 960	L				
961	Hi				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	8-4-09/ 1500	RL Bol RISTEGLE	8.4.09 1500
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

☐ ORIGINAL

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

A-6003-619(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V09-002-127		PAGE 2 OF 2
COLLECTOR Rosane Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7466; I-005	PROJECT DESIGNATION WMA C Sampling for CNS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 76	ACTUAL SAMPLE DEPTH 84'-86'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-8003-618(01/06)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C-74-68 I-005

Sampler Initials and Date: 8-4-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B211W5	K	No Methanol		33.1	37.5	4.4	No Methanol
B211W5	L			32.5	37.7	5.2	
B211W5	M			37.5	37.8	5.3	
B211W5	N			33.1	38.4	5.3	
B211W5	P			33.2	39.7	6.5	
B211W5	W	38.8	38.7	39.1	44.1	5.0	10
B211W5	X	38.5	38.4	39.0	46.0	7.0	10
B211W5	Y	38.6	38.5	39.1	45.1	6.0	10
B211W4	*	39.2	39.2	39.7	39.7	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-4-09 14:10

SAF NO.(S) V09-002

LOCATION C7466; 1-006

LOGBOOK NO./PAGE HNF-N-576-3 pg 74

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 109.5' to 111.5' ☑ft ☐m

BOTTOM OF CASING (bgs) 109.5 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 111.5 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kaus, Rust, Rosane

222-S V09-002-128

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211W6	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-129

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211W7	1 / 40mL / aGs*	814011D	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-130

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211W8	5 / 40mL / aGs*	814011D	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211W8	3 / 40mL / aGs*	814011D	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

☐ ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-4-09/1410

SAF NO.(S) V09-002

LOCATION C7466; I-006

LOGBOOK NO./PAGE HNF-N-576-3 B76

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 109.5 to 111.5 ☑ft ☐m

BOTTOM OF CASING (bgs) 109.5 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 111.5 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust, Rosane

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.)]

Silt and Sand mix

FIELD OBSERVATIONS

WEATHER 103°F 0.5 mph wind Sunny

FIELD COMMENTS ALL 3 Loowers full

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) (SIGN NAME) 8-4-09 (DATE)

CHECKED BY Larry Reisauer (PRINT NAME) Larry Rosane (SIGN NAME) 8-4-09 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:16:37 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-128

COLLECTOR: Kauer, Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days		
SAMPLING LOCATION: C7466; 1-006	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: 109.5 to 111.5	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=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: 222S20090574

PRESERVATION	Cool~0C
TYPE OF CONTAINER	Undr
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211W6	SOIL	8-9-09	14:10
309U000978 A			
981 ~~989~~ B			
984 C			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, Ed Rust	8-9-09 1500	Rhett Rhetc	8-9-09 1500
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

☐ ORIGINAL

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

A-6003-618(01/08)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V09-002-128	PAGE 2 OF 2
COLLECTOR: Kauer, Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; 1-006	PROJECT DESIGNATION: WHA C Sampling for CHS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 P576	ACTUAL SAMPLE DEPTH: 109.5 to 111.5	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	

DATA TURNAROUND: 75 Days / 75 Days

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) (1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz(a,h)anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) (Mercury) PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260) TPH-Gasoline Range - WTPH-G (Total petroleum hydrocarbons - gasoline range) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range) Pesticides - 8081 (TF) (2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) (Nitrogen in ammonium) Sulfide - 9215 (Sulfide) Total Cyanide - 9014 (TF) (Cyanide) pH (Soil) - 9045 (pH Measurement) GAMMA ENERGY ANALYSIS (TF) (Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Actinides ICPMS (TF) (Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238) Americium-241 (TF) (Americium-241) I129_SEP_GEA (TF) (Iodine-129) C-14 (Carbon-14) CURIUM (Curium-242, Curium-243, Curium-244) H3 - TRITIUM (Tritium) Isotopic Plutonium (Plutonium-238, Plutonium-239/240) Nickel-63 (TF) (Nickel-63) Selenium-79 (TF) (Selenium 79) Strontium-89,90 -- Sr-90 (Strontium-90)

ORIGINAL

A-6083-618(01/98)

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-129 — PAGE 1 OF 1

COLLECTOR Kautz, Rust, Rosure	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7466; I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 B7L	**ACTUAL SAMPLE DEPTH** 108.5 to 111.5	**COA** 301483E510
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A

PRICE CODE 8P — **DATA TURNAROUND** 75 Days / 75 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=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: 22252009057H

PRESERVATION	Cool-4C
TYPE OF CONTAINER	aOz*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211W7	SOIL	8-4-09	1410 ✓
S096200975			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kautz, [illegible]	8-4-09 1500	Robert Rikkede	8-4-09 1500
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

** All VOA samples will be collected using EPA Method 503SA.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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 | V09-002-130 | PAGE 1 OF 2

COLLECTOR: Kaye, Rust, Rosane	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7-166, I-006	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: 109.5 to 111.5	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	

DATA TURNAROUND: 75 Days / 75 Days

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)

68°

222S20040574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <-7C and >-20C	MEDIUM/Cool-6 C
TYPE OF CONTAINER	aGa*	aGa*
NO. OF CONTAINER(S)	5	5
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B211W8	SOIL	8-4-09	1410	✓	✓
S0HV000969	Lo				
S0HV000972	Hi				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
SE Kaye/SE Rust	8-4-09 1500	[illegible] R Steele	8-4-09 1500
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

ORIGINAL

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			V09-002-130	PAGE 2 OF 2
COLLECTOR	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7466; 1-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. PS 17NF-N-576-3	ACTUAL SAMPLE DEPTH	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

ORIGINAL

A-6035-610(01/06)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C74-66 I-006

Sampler Initials and Date: 8-4-09 R 14:20

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B211W8	K	No Methanol		32.0	36.8	4.8	No Methanol
B211W8	L			32.5	37.1	4.6	
B211W8	M			32.9	39.2	6.3	
B211W8	N			32.7	39.7	7.0	
B211W8	P			32.1	38.0	5.9	
B211W8	W	38.7	38.6	39.2	45.7	6.5	10
B211W8	X	38.5	38.4	39.0	44.2	5.2	10
B211W8	Y	38.6	38.7	39.2	44.3	5.1	10
B211W7	*	38.9	38.8	39.3	39.3	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

C-7466 C-Farms HNF-N-576-3 pg 77

Date: 8-5-09

Weather 98° Sunny 5-10 mph

NRO's Rosine Rust

Drillers - Energy Solutions

F.W.S. - Bill Clark RWP CO-460 - Rev 6

0730 - Completed TB, B21736, V09-003-018

0945: Completed sample I-007 @ 114'-116'

B211N9 } V09-002-131
B211X0 } V09-002-132 } 222-5 labs
B211X1 } V09-002-133

1352 - Completed sample I-008 @ 133'-135'

B211X2, V09-002-134
B211X3, V09-002-135 } 222-5 labs
B211X4, V09-002-136

all liners 100% full of soil Field reading did not exceed back-ground levels.

Well C-7466 complete

1500 - Samples were delivered to 222-5 labs per Blue Card # 5

Not entry the Date 8-5-09 LJR

Larry Rosine 8-5-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8-5-09 / 0750

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB4

LOGBOOK NO./PAGE HNF-N-576-3 pg. 77

WELL NAME C-7466

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Rosane, Rust

222-S V09-003-018

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21736	3 / 40mL / aGs*	8140110	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

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	N/A	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)									

FIELD OBSERVATIONS

WEATHER 75° inside

FIELD COMMENTS N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 8-5-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) (SIGN NAME) 8-5-09 (DATE)

PRINTED BY LCSUMNER ON 7/28/2009 2:52:32 PM

A-6004-700 (REV.0)

Washington River Protection Solutions | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | V09-003-018 | PAGE 1 OF 1

COLLECTOR: Rosane, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: WMA-C Tank Farm - TB4	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg77	ACTUAL SAMPLE DEPTH: N/A	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 7P | 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)
222S20090573
50

SPECIAL HANDLING AND/OR STORAGE: 20090573 PHH

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21736	WATER	8-5-09	0730	✓
509VOC851				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	8-5-09 1500	Rhd Hall Rhd Hall	8-5-09 1500

SPECIAL INSTRUCTIONS

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-5-09/0445

SAF NO.(S) V09-002

LOCATION C7466; I-007

LOGBOOK NO./PAGE HNF-N-576-3 pg 77

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 114'-116' ☐ft ☐m

BOTTOM OF CASING (bgs) 114' ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) 116' ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Rosane, Rust

222-S V09-002-131

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211W9	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-132

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211X0	1 / 40mL / aGs*	814010	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-133

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211X1	5 / 40mL / aGs*	814010	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211X1	3 / 40mL / aGs*	814010	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-5-09/0945

SAF NO.(S) V09-002

LOCATION C7466; 1-007

LOGBOOK NO./PAGE HNF-N-576-3 pg 77

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 114'-116' ☑ft ☐m

BOTTOM OF CASING (bgs) 114' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 116' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Rosane Rust

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.)]

N/A

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 # 5

IS SRS PROVIDED AND COMPLETE ☑ YES ☐ NO

RECORDED BY Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 8-5-09 (DATE)

CHECKED BY Rose Rust (PRINT NAME) (SIGN NAME) 8-5-09 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:16:45 AM A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-131 PAGE 1 OF 2

COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7466; I-007	PROJECT DESIGNATION: WHA C Sampling for CHS		SAF NO.: V09-002
ICE CHEST NO.:	FIELD LOGBOOK NO.: HNF-N-376-3 pg 77	ACTUAL SAMPLE DEPTH: 114'-116'	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)

222S09090574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	1600
SAMPLE ANALYSIS	See Item (1) in SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211W9	SOIL	8-5-09	0945 ✓
SOIV000 979			
982			
985			

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	8-5-09/ 1500	[illegible]	8-5-09 1500
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

ORIGINAL

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** | **V09-002-131** | **PAGE 2 OF 2**

COLLECTOR Rosanne Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C7466; 1-007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 77	**ACTUAL SAMPLE DEPTH** 114'-116'	**COA** 3014838510	**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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - {CV} (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G - {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium 79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A 6003 618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-132 PAGE 1 OF 1

COLLECTOR: Rosane Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days		
SAMPLING LOCATION: C7466; I-007	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 79	ACTUAL SAMPLE DEPTH: 114'-116'	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	

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)

PRESERVATION: Cool-4C

TYPE OF CONTAINER: aGs*

NO. OF CONTAINER(S): 1

VOLUME: 40mL

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222SC0090574

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211X0	SOIL	8-5-09	0945
S09V000976			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Lacy Rousse Lacy Rousse 8-5-09	1500	RDSteele RDSteele 8-5-09	1500
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

** All VOA samples will be collected using EPA Method 5035A. ** All VOA samples will be collected using EPA Method 5035A.

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

V09-002-133

PAGE 1 OF 2

COLLECTOR Rosawe, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P
SAMPLING LOCATION C7466; I-007	**PROJECT DESIGNATION** W66A C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 77	**ACTUAL SAMPLE DEPTH** 114'-116'	**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 75 Days / 75 Days

MATRIX*
A=Air
DI=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)

222S2009 0574

SPECIAL HANDLING AND/OR STORAGE
34°

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aOs*	
NO. OF CONTAINER(S)	3	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B211X1	SOIL	8-5-09	0945	✓	✓
S09V000 970					
S09V000 973					

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe, Larry Rosawe	8-5-09 / 1500	[illegible]	8-6-09 1500

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

☐ ORIGINAL

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		V09-002-133	PAGE 2 OF 2
COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; I-007	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 77	ACTUAL SAMPLE DEPTH: 114' - 116'	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	

DATA TURNAROUND: 75 Days / 75 Days

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6000-618(01/08)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C-7460 I-~~005~~ I-007

Sampler Initials and Date: 8-4-09 [illegible] weights re-verified 8-5-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B211X1	K	No Methanol		32.3	37.3	5.0	No Methanol
B211X1	L			32.2	38.0	5.8	
B211X1	M			32.7	39.0	6.3	
B211X1	N			31.7	37.2	5.5	
B211X1	P			32.2	38.2	6.0	
B211X1	W	38.6	38.6	39.2	46.1	6.9	10
B211X1	X	39.6	39.6	40.2	47.4	7.2	10
B211X1	Y	39.0	39.0	39.6	45.0	5.4	10
B211X0	*	39.0	39.0	39.5	39.5	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-5-09 1352

SAF NO.(S) V09-002

LOCATION C7466; I-008

LOGBOOK NO./PAGE HNF-N-576-3 pg 77

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 133'-135' ☑ft ☐m

BOTTOM OF CASING (bgs) 133' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 135' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Rosane, Rust

222-S V09-002-134

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211X2	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-135

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211X3	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-136

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211X4	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211X4	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-5-09/1352

SAF NO.(S) V09-002

LOCATION C7466; I-006

LOGBOOK NO./PAGE HNF-N-576-3 pg 77

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 133'-135' ☑ft ☐m

BOTTOM OF CASING (bgs) 133' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 135' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Rosane, Rust

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 Dry

FIELD OBSERVATIONS

WEATHER 99°F Sunny 5-10 mph

FIELD COMMENTS N/A

SUPPORT PERSONNEL RCT Drillers, Fwls,

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 Larry Rosane (PRINT NAME) Larry Rosane (SIGN NAME) 8-5-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) (SIGN NAME) 8-5-09 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:16:51 AM A-6004-701 (REV.0)

☐ ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-134 PAGE 1 OF 2

COLLECTOR: Rosane Rust

COMPANY CONTACT: SYDNOR, HA

TELEPHONE NO.: 373-3967

PROJECT COORDINATOR: WIDRIG, DL

PRICE CODE: 8P

DATA TURNAROUND: 75 Days / 75 Days

SAMPLING LOCATION: C7466; I-008

PROJECT DESIGNATION: WMA C Sampling for CMS

SAF NO.: V09-002

AIR QUALITY: ☐

ICE CHEST NO.:

FIELD LOGBOOK NO.: HNF-N-576-3 pg 77

ACTUAL SAMPLE DEPTH: 133'-135'

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)

222S20090574

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SPF ITEM (1) IN SPLCRM: RETRIEVE TRIM

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211X2	SOIL	8-5-09	1352 ✓
509VOCC980	A		
509VOCC983	B		
509VOCC986	C		

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Lenny Rosane Lenny Rosane	8-5-09 1500	[illegible]	8-5-09 1500
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

ORIGINAL

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** | **V09-002-134** | **PAGE 2 OF 2**

COLLECTOR Rosanne Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7466; I-008	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-W-576-3 pg 77	**ACTUAL SAMPLE DEPTH** 133'-135'	**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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3 cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichlorpethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-135

PAGE 1 OF 1

COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; I-008	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF+N-576-3 pg 77;	ACTUAL SAMPLE DEPTH: 133'-135'	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: 75 Days / 75 Days

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, 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)

PRESERVATION: Cool-6C

TYPE OF CONTAINER: aGs*

NO. OF CONTAINER(S): 1

VOLUME: 40mL

SPECIAL HANDLING AND/OR STORAGE: 222SCCCC0574

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B211X3	SOIL	8-5-09	1352	✓
S09V000977				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane	8-5-09/ 1500	[illegible]	8-5-09 1500
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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

V09-002-136

PAGE 1 OF 2

COLLECTOR: Rosane Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7466; I-008	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 77	ACTUAL SAMPLE DEPTH: 133'-135'	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: 75 Days / 75 Days

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)

53°

SPECIAL HANDLING AND/OR STORAGE: 22252009 0574

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool<-6 C
TYPE OF CONTAINER	aGa*	aGa*
NO. OF CONTAINER(S)	3	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B211X4	SOIL	8-5-09	1352	✓	✓
S09V000971					
S09V000974					

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Rosane Rust Rosane Rust	8-5-09 1500	RJ Stegle RJ Stegle	8-5-09 1500
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

☐ ORIGINAL

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

A-6003-618(01/08)

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-136 — PAGE 2 OF 2

COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C7466; 1-008	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg. 77	ACTUAL SAMPLE DEPTH: 133'-135'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6089-618(01/06)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C7466 I-008

Sampler Initials and Date: 8-5-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B211X4	K	No Methanol		31.9	37.4	5.5	No Methanol
B211X4	L			32.7	38.4	5.7	
B211X4	M			33.0	41.0	8.0	
B211X4	N			32.6	40.4	7.8	
B211X4	P			32.1	39.1	7.0	
B211X4	W	37.8	37.8	38.4	45.6	7.2	10
B211X4	X	38.7	38.6	39.2	44.7	5.5	10
B211X4	Y	39.2	39.2	39.7	45.7	6.0	10
B211X3	*	39.2	39.1	39.7	39.7	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

C7468 C-Farms HNF-N-576-3 p78
Date 8-10-09 Weather 85°F Sunny Wind 5-10 mph
NCO's Kramer, Rust
FW's Bill Clark HPT Bill Bernard
1000 Trip blank completed WMA-C Tank Farms TB-5
B21737 V09-003-019
1015 on site for briefs and sign in and prep for sampling
10:45 - Completed Surface Sample @ 0-1'
B21220, V09-002-170
B21221, V09-002-171 } 222S
B21540, V09-002-176
Surface Sample Dup @ 0-1'
B20VK6, V09-004-201 } 222S
B20VK7, V09-004-202
1330 - Samples were delivered to 222-S Labs per Blue Card #5
1426 - No Further Entries this Date [signature] 8-10-09

[signature]
8-10-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8-10-09 10:00

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB5

LOGBOOK NO./PAGE HNF-N-576-3 p78

WELL NAME L7468

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐in

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kauer, Rust

222-S V09-003-019

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21737	3 / 40mL / aGs*	HA 825501	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

FIELD INFORMATION

			TIME ON	TIME WATER	TIME PURGE	TIME SAMP	TIME OFF
PURGE RATE	N/A	☐ gpm ☐ Lpm	N/A	N/A	N/A	1000	N/A
PURGE VOLUME REQUIRED	N/A	☐ gal ☐ L					

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)											

EK 8-10-09

FIELD OBSERVATIONS

WEATHER 79°F Inside

FIELD COMMENTS N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY Ed Kauer (PRINT NAME) — SIGN NAME — DATE 8-10-09

CHECKED BY Steve Rust (PRINT NAME) — SIGN NAME — DATE 8-10-09

PRINTED BY LCSUNNER ON 7/28/2009 2:52:35 PM

A-6004-700 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-019	PAGE 1 OF 1
COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: WMA-C Tank Farm - TBS	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pT8	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=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)

31

SPECIAL HANDLING AND/OR STORAGE: 222S20090609

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGS*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21737	WATER	8-10-09	10:00
20090609			
509V001043			

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, Ed Rust	8-10-09 1330	RHRobb RHRobb	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

SPECIAL INSTRUCTIONS

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 1

DATE/TIME 8-10-09/1045

SAF NO.(S) V09-002

LOCATION C7468; Surface

LOGBOOK NO./PAGE HNF-N-576-3 PS 78

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 0-1 ☒ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauge, Rust

222-S V09-002-170

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21220	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-171

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21221	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21221	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

222-S V09-002-176

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21SL0	2 / 500mL / G/P	029038	~~Cool~4C~~/Cool~6C RCB 7/24/09	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

ORIGINAL

PRINTED BY TMJOHANS ON 7/14/2009 9:32:03 AM.

A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-10-09/1045

SAF NO.(S) V09-002

LOCATION C7468; Surface

LOGBOOK NO./PAGE HNF-N-576-3 PS78

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 0-1 ☑ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauk, Rust

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 Some Gravel

FIELD OBSERVATIONS

WEATHER 81°F 0-5 mph wind Sunny to Partly cloudy

FIELD COMMENTS Surface Sample 0-1'

SUPPORT PERSONNEL Hpt 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 Kauk PRINT NAME SIGN NAME DATE 8-10-09

CHECKED BY Steve Rust PRINT NAME SIGN NAME DATE 8-10-09

PRINTED BY TMJOHANS ON 7/14/2009 9:32:03 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-170	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	8P	DATA TURNAROUND
Kauer, Rust	SYDNOR, HA	373-3967	WIDRIG, DL	AIR QUALITY	☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**			
C7468; Surface	WMA C Sampling for CMS		V09-002			
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-576-3 Pg 75	0-1'	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=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)

31'

PRESERVATION	Cool-6C
TYPE OF CONTAINER	VGS*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222SR00090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21220	SOIL	8-10-09	1045
S09V000 1050			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer	8-10-09 1330	RHStrode	8-10-09 1330

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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			V09-002-171	PAGE 1 OF 2
COLLECTOR: Kauss, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; Surface	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF N-576-3 8578	ACTUAL SAMPLE DEPTH: 0-1	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		

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)

14"

SPECIAL HANDLING AND/OR STORAGE: 222SC090607

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool <-6 °C
TYPE OF CONTAINER	aGa*	aGa*
NO. OF CONTAINER(S)	3	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B21221	SOIL	8-10-09	1045	✓	✓
S09V004 1048					
S09V005 1049					

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
S. Kauss, [illegible]	8-10-09 1330	[illegible]	8-10-09 1730

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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			V09-002-171	PAGE 2 OF 2
COLLECTOR Kauer Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; Surface	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. 65 78 HNF-N-576-3	ACTUAL SAMPLE DEPTH 0-1	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C7+68 Surface

Sampler Initials and Date: [illegible] 8-10-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21221	K	No Methanol		31.8	36.5	4.7	No Methanol
B21221	L			33.0	37.6	4.6	
B21221	M			32.8	37.4	4.6	
B21221	N			32.5	36.9	4.4	
B21221	P			32.0	36.5	4.5	
B21221	W	39.1	39.1	39.7	44.1	4.4	10
B21221	X	39.0	39.0	39.6	44.8	5.2	10
B21221	Y	38.4	38.4	39.0	42.8	3.8	10
B21220	*	38.8	38.8	39.4	39.4	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

Washington River Protection Solutions | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | V09-002-176 | PAGE 1 OF 2

COLLECTOR Kause, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION C7468; Surface	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 PS78	**ACTUAL SAMPLE DEPTH** 0-1'	**COA** 301483ES10
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A

PRICE CODE 8P **DATA TURNAROUND** 75 Days / 75 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=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)

31°

SPECIAL HANDLING AND/OR STORAGE 222S20090607

PRESERVATION	PCB 7/29/09 ~~Cool~~ 4C/Cool
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	2
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B215L0	SOIL	8-10-09	1045
S09V001051			

CHAIN OF POSSESSION — **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Rust, Ed Sellan	8-10-09 1330	R H Stockle	8-10-09 1330

SPECIAL INSTRUCTIONS SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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			V09-002-176	PAGE 2 OF 2
COLLECTOR Kauer, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE SP	DATA TURNAROUND
SAMPLING LOCATION C7468; Surface	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. 5578 HWF W-576-3	ACTUAL SAMPLE DEPTH 0-1'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz(a,h)anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-10-09/1045

SAF NO.(S) V09-002

LOCATION C7468; Surface-D

LOGBOOK NO./PAGE HNF-N-576-3 PS78

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 0-1 ☒ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

222-S V09-002-172

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21222	5 / 40mL / aGs*	814010	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21222	3 / 40mL / aGs*	814010	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

222-S V09-002-177

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21SL1	2 / 500mL / G/P	829038	PGB ~~Cool~~/Cool~6C 7/21/09	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-182

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21732	1 / 40mL / aGs*	814040	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS.

PAGE 2 OF 2

DATE/TIME 8-10-09/1045

SAF NO.(S) V09-002

LOCATION C7468; Surface-D

LOGBOOK NO./PAGE HNF-N-576-3 PG 78

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 0-1 ft ☐ in

BOTTOM OF CASING (bgs) N/A ☐ ft ☐ in

BOTTOM OF BOREHOLE (bgs) N/A ☐ ft ☐ in

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 11 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauk, Rust

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 some Gravel

FIELD OBSERVATIONS

WEATHER 81°F 0-5 mph wind Sunny to partly Cloudy

FIELD COMMENTS Surface Sample 0-1"

SUPPORT PERSONNEL HNF 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 Kauk (PRINT NAME) [signature] (SIGN NAME) 8-10-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) [signature] (SIGN NAME) 8-10-09 (DATE)

PRINTED BY TMJOHANS ON 7/14/2009 9:27:53 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-172 — PAGE 1 OF 2

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7468; Surface-D	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 Pg 78	ACTUAL SAMPLE DEPTH: 0-1'	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

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)

14°

SPECIAL HANDLING AND/OR STORAGE: 22DS2ev40607

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool-6 C
TYPE OF CONTAINER	wGa*	wGa*
NO. OF CONTAINER(S)	5	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B21222	SOIL	8-10-09	1045	✓	✓
S09V001069					
S09V001070					

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kauer, Rust	8-10-09 1330	RJSteele	8-10-09 1330

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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			V09-002-172	PAGE 2 OF 2
COLLECTOR Kower, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY —	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7468; Surface-D	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. PS78 HNF-N-576-3	ACTUAL SAMPLE DEPTH 0-1'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-619(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-182 PAGE 1 OF 1

COLLECTOR: KAUSR, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7468; Surface-D	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: PS78 HNF-N-576-3	ACTUAL SAMPLE DEPTH: 0-1'	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)

31°

SPECIAL HANDLING AND/OR STORAGE: 222ST(W9060)

PRESERVATION	Cool-4C
TYPE OF CONTAINER	WGM
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21732	SOIL	8-10-09	1045
S09V001071			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
KAUSR, Rust	8-10-09 1330	Richard Ristgele	8-10-09 1330

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-618(01/09)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C7468 Surface-D

Sampler Initials and Date: JL 8-10-09 1045

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21222	K	No Methanol		32.1	36.6	5.4	No Methanol
B21222	L			33.0	37.5	4.5	
B21222	M			32.4	36.9	4.5	
B21222	N			32.0	37.4	5.4	
B21222	P			32.9	37.8	4.9	
B21222	W	38.9	38.9	39.4	45.9	6.5	10
B21222	X	39.4	39.4	40.0	44.7	4.7	10
B21222	Y	38.7	38.7	39.3	43.8	4.5	10
B21732	*	39.4	39.4	40.0	40.0	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-177 PAGE 1 OF 2

COLLECTOR: Kraus, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: RP
SAMPLING LOCATION: C7468; Surface-D	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PS 78	ACTUAL SAMPLE DEPTH: 0-1'	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	

DATA TURNAROUND: 75 Days / 75 Days

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)

31°

PRESERVATION	~~Cool~~ 4C/Cool~ 6C PCB 7/29/09
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	2
VOLUME	300mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222SZC090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B215L1	SOIL	8-10-09	1045
509000 1052			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Shawn Kraus	DATE/TIME: 8-10-09 1330	RECEIVED BY/STORED IN: R/Stecle	DATE/TIME: 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

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/00)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-177	PAGE 2 OF 2
COLLECTOR Kasch, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7468; Surface-D	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. P578 HNF-N-576-3	ACTUAL SAMPLE DEPTH 0-1'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

(1)Semi-VOA - 8270 Complete (TF) (1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Triautyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) (Mercury) PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260) TPH-Gasoline Range - WTPH-G (Total petroleum hydrocarbons - gasoline range) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range) Pesticides - 8081 (TF) (2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) (Nitrogen in ammonium) Sulfide - 9215 (Sulfide) Total Cyanide - 9014 (TF) (Cyanide) pH (Soil) - 9045 (pH Measurement) GAMMA ENERGY ANALYSIS (TF) (Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Actinides ICPMS (TF) (Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238) Americium-241 (TF) (Americium-241) 7129_SEP_GEA (TF) (Iodine-129) C-14 (Carbon-14) CURIUM (Curium-242, Curium-243, Curium-244) H3 - TRITIUM (Tritium) Isotopic Plutonium (Plutonium-238, Plutonium-239/240) Nickel-63 (TF) (Nickel-63) Selenium-79 (TF) (Selenium-79) Strontium-89,90 -- Sr-90 (Strontium-90)

ORIGINAL

A-6003-613(01/08)

7468 C-FARMS HNF-N-3[illegible] PG 17
Date - 8-11-09 weather 79°F to 89°F wind 5-10 mph
partly Cloudy well C7468
NCO's Raver, Rust FWS - Bill clark Hot Bill Bernard
0710 completed Trip Blank (TB-6) B21138 V09-003-020 (2225)
0720 - on site Pre-Job Sign in
0840 - completed I-001 @ 5-7'
B21143 V09-002-143
B21144 V09-002-144
B21145 V09-002-145
} 222-S Labs
All 3 Liners full 100% Field Readings
Below Background
0910 - Completed I-002 @ 10' to 12'
B21146 V09-002-146
B21147 V09-002-147
B21148 V09-002-148
} 222-S Labs
Only 2 Liners full 75% 1 Liner Empty
Field Readings Below Background
0945 - Completed I-003 @ 14' to 16'
B21149 V09-002-149
B21200 V09-002-150
B21201 V09-002-151
} 222 S Labs
All 3 Liners full 100%
Field Readings Below Background
1240 - Delivered Samples to 222-S Labs
per Blue card # 5
1300 - shut down Do To wind
1330 - No Further Entries This Date [illegible] 8-11-09

[illegible] 8-11-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8-11-09 0710

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB6

LOGBOOK NO./PAGE HNF-N-576-3 PG75

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kauer, Rust

222-S V09-003-020

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21738	3 / 40mL / aGs*	HA 82550	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

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	0710	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)								

EK 8-11-09

FIELD OBSERVATIONS

WEATHER 79°F Inside

FIELD COMMENTS N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY Ed Kauer (PRINT NAME) — SIGN NAME — DATE 8-11-09

CHECKED BY Shaw Rust (PRINT NAME) — SIGN NAME — DATE 8-11-09

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A-6004-700 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V09-003-020	PAGE 1 OF 1
COLLECTOR: KAUR, RUST	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P
SAMPLING LOCATION: WMA-C Tank Farm - TB6	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	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	

DATA TURNAROUND: 75 Days / 75 Days

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)

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222SC090609

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21738	WATER	8-11-09	0710 ✓
SQ9J00 1044			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Erkan, Rust	8-11-09 1240	Rittenhouse RSteele	8.11.09 1240

SPECIAL INSTRUCTIONS

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-11-09 / 0840

SAF NO.(S) V09-002

LOCATION C7468; I-001

LOGBOOK NO./PAGE HNF-N-576-3 P579

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 5-7 ☑ft ☐m

BOTTOM OF CASING (bgs) 5 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 7 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

222-S V09-002-143

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y3	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-144

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y4	1 / 40mL / aGs*	814010	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-145

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y5	5 / 40mL / aGs*	814010	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211Y5	3 / 40mL / aGs*	814010	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for OMS

PAGE 2 OF 2

DATE/TIME 8-11-09 / 0840

SAF NO.(S) V09-002

LOCATION C7468; I-001

LOGBOOK NO./PAGE HNF-N-576-7 PG 75

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 5-7 ☑ft ☐m

BOTTOM OF CASING (bgs) 5 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 7 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

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 to 80°F partly Cloudy 0-5 mph wind

FIELD COMMENTS All 3 Liners 100% full

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) (SIGN NAME) 8-11-09 (DATE)

CHECKED BY Steve Rust (PRINT NAME) (SIGN NAME) 8-11-09 (DATE)

PRINTED BY TMJOHANS ON 7/14/2009 12:14:39 PM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-143 PAGE 1 OF 2

COLLECTOR: Hauck, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	AIR QUALITY: ☐	DATA TURNAROUND: 75 Days / 75 Days	
SAMPLING LOCATION: C7468; I-001	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG 75	ACTUAL SAMPLE DEPTH: 5 to 7'	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	

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)

48'

PRESERVATION	Cool-8C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	100g

SPECIAL HANDLING AND/OR STORAGE: 22252009 0607

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211Y3 1083	SOIL	08-11-09	0840 ✓
5091W0 ~~1083~~	A	OAR 8/13/09	
1084	B		
1085	C		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: EG Rust/	DATE/TIME: 8-11-09 1240	RECEIVED BY/STORED IN: RKSteele	DATE/TIME: 8.11.09 1240
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

ORIGINAL

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

A-6003-618(01/08)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-143 PAGE 2 OF 2
COLLECTOR Kaiser, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐
SAMPLING LOCATION C7468; I-001	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	DATA TURNAROUND 75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. P575 HNRN-576-3	ACTUAL SAMPLE DEPTH 5 to 7	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-144 PAGE 1 OF 1

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7468; I-001	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 Pg 79	ACTUAL SAMPLE DEPTH: 5' to 7'	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: 222S20090607

PRESERVATION	Cool-6C
TYPE OF CONTAINER	aGz*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B211Y4	SOIL	08-11-09	08:40
509V00080			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Kauer/Rust	8-11-09 1240	RHGeele RHGeele	8.11.09 1240

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A. ** All VOA samples will be collected using EPA Method 5035A.

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

V09-002-145 PAGE 1 OF 2

COLLECTOR: Kaney Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days		
SAMPLING LOCATION: C7468; I-001	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
AIR QUALITY: ☐			
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 1579	ACTUAL SAMPLE DEPTH: 5' to 7'	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: 222S20090607

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C
TYPE OF CONTAINER	*Gs*	*Gs*
NO. OF CONTAINER(S)	5	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B211Y5	SOIL	08-11-09	0840	✓	✓
S09V001074	(Lo)				
1077	(Hi)				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E. Kaney / [illegible]	8-11-09 1240	R.K. Steele / R.K. Steele	8-11-09 1240
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

ORIGINAL

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

A-6003-618(01/08)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V09-002-145	PAGE 2 OF 2
COLLECTOR KAUR, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P DATA TURNAROUND
SAMPLING LOCATION C7468; 1-001	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐ 75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-5763 A79	ACTUAL SAMPLE DEPTH 5' to 7'	COA 301483C510	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

A-6003-518(01/08)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farms C7468 I-001

Sampler Initials and Date: 8-11-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
BZ11Y5	K	No Methanol		31.7	35.1	3.4	No Methanol
BZ11Y5	L			32.3	35.7	3.4	
BZ11Y5	M			32.4	37.0	4.6	
BZ11Y5	N			33.2	37.4	4.2	
BZ11Y5	P			32.8	36.9	4.1	
BZ11Y5	W	38.2	38.1	38.6	42.0	3.4	10
BZ11Y5	X	39.1	39.0	39.5	43.8	4.3	10
BZ11Y5	Y	38.4	38.3	38.8	42.6	3.8	10
BZ11Y4	*	38.6	38.5	38.9	38.9	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-11-09 / 0916

SAF NO.(S) V09-002

LOCATION C7468; I-002

LOGBOOK NO./PAGE HNF-N-576-3 PG 79

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 16-12' ☑ ft ☐ m

BOTTOM OF CASING (bgs) 10 ☑ ft ☐ m

BOTTOM OF BOREHOLE (bgs) 12' ☑ ft ☐ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Knox, Rust

222-S V09-002-146

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y6	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-147

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y7	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-148

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y8	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B211Y8	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-711 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-11-09 / 0910

SAF NO.(S) V09-002

LOCATION C7468; 1-002

LOGBOOK NO./PAGE HNF-N-576.3 Pg 78

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 10.12' ☑ft ☐m

BOTTOM OF CASING (bgs) 10' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 12' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauke, Rust

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 78°F - 0-5 mph wind partly cloudy

FIELD COMMENTS 2 Liners 100% full
1 Liner Empty

SUPPORT PERSONNEL Hot, 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 Kauke (PRINT NAME) [signature] (SIGN NAME) 8-11-09 (DATE)

CHECKED BY [illegible] (PRINT NAME) [signature] (SIGN NAME) 8/11/09 (DATE)

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A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-146 PAGE 1 OF 2

COLLECTOR: Karen Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: SP	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; I-002	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 P579	ACTUAL SAMPLE DEPTH: 10 to 12'	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		

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)

PRESERVATION	Cool-6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	~~1~~ 2
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222S20090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B211Y6	SOIL	8-11-09	0910	✓	
SOATW1086					
↓ 1087					

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kawa / [illegible]	8-11-09 1246	[illegible]	8-11-09 1246
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

Only 2 Liners Full
1 Liner Empty

ORIGINAL

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			V09-002-146	PAGE 2 OF 2
COLLECTOR Kauer, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; I-002	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 P575	ACTUAL SAMPLE DEPTH 10' to 12'	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4' DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/08)

Washington River Protection Solutions | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | V09-002-147 | PAGE 1 OF 1

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P; DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; I-002	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.:	FIELD LOGBOOK NO.: HNF-N-576-3 P379	ACTUAL SAMPLE DEPTH: 10-12'	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)

48°

SPECIAL HANDLING AND/OR STORAGE: 22052009067

PRESERVATION	Cool-4C
TYPE OF CONTAINER	ABs*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B211Y7	SOIL	05-11-05	0910	✓
509VOA 1081				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer/	5-11-05 1246	R Kauer R Rust	5.11.05 1246
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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-618(01/04)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-148 PAGE 1 OF 2

COLLECTOR: KAUGE, RUST	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; T-002	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG 79	ACTUAL SAMPLE DEPTH: 10' to 12'	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)

29'

SPECIAL HANDLING AND/OR STORAGE: 22DS20090607

PRESERVATION	Cool <-7C and >-20C	HCOH/Cool-6 C		
TYPE OF CONTAINER	WGs*	WGs*		
NO. OF CONTAINER(S)	5	3		
VOLUME	40mL	40mL		
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B211Y8	SOIL	08-11-09	0910	✓	✓				
S09V001075	SO								
1078	HC								

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauge / [illegible] 8-11-09	DATE/TIME: 1240	RECEIVED BY/STORED IN: [illegible] RK/EE/C 8.11.09	DATE/TIME: 1240
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

ORIGINAL

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

A-6003-618(04/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-148	PAGE 2 OF 2
COLLECTOR Kauer, Rost	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; I-002	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 P579	ACTUAL SAMPLE DEPTH 10'-12'	COA 3014035518	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A 6003 618(01/06)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C7468 I-002

Sampler Initials and Date: 8-11-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B211Y8	K	No Methanol		32.3	38.5	6.2	No Methanol
B211Y8	L			32.4	39.9	7.5	
B211Y8	M			32.9	41.1	8.2	
B211Y8	N			32.4	38.2	5.8	
B211Y8	P			32.3	39.7	7.4	
B211Y8	W	38.1	38.1	38.5	45.0	6.5	10
B211Y8	X	38.8	38.7	39.2	45.8	6.6	10
B211Y8	Y	37.9	37.9	38.4	47.8	9.4	10
B211Y7	*	39.6	39.5	39.9	39.9	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-11-09 / 0545

SAF NO.(S) V09-002

LOCATION C7468; I-003

LOGBOOK NO./PAGE HNF-N-576-3 PG 79

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 14' to 16' ☑ft ☐m

BOTTOM OF CASING (bgs) 14 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 16 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauk, Rust

222-S V09-002-149

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B211Y9	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-150

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21200	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-151

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21201	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21201	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

☑ UNUSUAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-11-09/0945

SAF NO.(S) V09-002

LOCATION C7468; 1-003

LOGBOOK NO./PAGE HNF-N-576-3 PS79

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 14' to 16' ☑ft ☐m

BOTTOM OF CASING (bgs) 14 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 16 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

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 Sand some Rock

FIELD OBSERVATIONS

WEATHER 79°F 0-5 mph wind partly cloudy

FIELD COMMENTS ALL 3 Liners Full

SUPPORT PERSONNEL HPI, 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) (SIGN NAME) 8-11-09 (DATE)

CHECKED BY J.D. Spicer (PRINT NAME) CHPFIC (SIGN NAME) AUG 12 2009 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:17:34 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-149

PAGE 1 OF 2

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WEDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG 75	ACTUAL SAMPLE DEPTH: 14' to 16'	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)

48°

SPECIAL HANDLING AND/OR STORAGE: 22252C090607

PRESERVATION	Cool-4C
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	
B211Y9	SOIL	08-11-09	0945	✓
S09V00 1089				
1090				
1091				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer 8-11-09	DATE/TIME: 1240	RECEIVED BY/STORED IN: [illegible] 8-11-09	DATE/TIME: 1240
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

ORIGINAL

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			V09-002-149	PAGE 2 OF 2
COLLECTOR Kauer, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3	ACTUAL SAMPLE DEPTH 14 to 16'	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) (1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine) ICP Metals - 6010 (SW-846) (TF) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc) Mercury - 7471 - (CV) (TF) (Mercury) PCBs - 8082 (Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260) TPH-Gasoline Range - WTPH-G (Total petroleum hydrocarbons - gasoline range) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range) Pesticides - 8081 (TF) (2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene) IC Anions - 9056 (2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate) 300.7_AMMONIUM (TF) (Nitrogen in ammonium) Sulfide - 9215 (Sulfide) Total Cyanide - 9014 (TF) (Cyanide) pH (Soil) - 9045 (pH Measurement) GAMMA ENERGY ANALYSIS (TF) (Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Actinides ICPMS (TF) (Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238) Americium-241 (TF) (Americium-241) I129_SEP_GEA (TF) (Iodine-129) C-14 (Carbon-14) CURIUM (Curium-242, Curium-243, Curium-244) H3 - TRITIUM (Tritium) Isotopic Plutonium (Plutonium-238, Plutonium-239/240) Nickel-63 (TF) (Nickel-63) Selenium-79 (TF) (Selenium-79) Strontium-89,90 -- Sr-90 (Strontium-90)

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-150

PAGE 1 OF 1

COLLECTOR: Kauz, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; 1-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 P97	ACTUAL SAMPLE DEPTH: 14' to 16'	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		

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)

PRESERVATION	Cool~6C
TYPE OF CONTAINER	aGa*
NO. OF CONTAINER(S)	1
VOLUME	40mL

SPECIAL HANDLING AND/OR STORAGE: 2225200906 07

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21200	SOIL	08-11-09	0545	✓
509V001082				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauz / [signature]	8-11-09 1240	[signature] / RHSteele	8-11-09 1240

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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 | V09-002-151 | PAGE 1 OF 2

COLLECTOR: Kauer Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7468; I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 Pg 75	ACTUAL SAMPLE DEPTH: 14' to 16'	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: 75 Days / 75 Days

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)

29°

SPECIAL HANDLING AND/OR STORAGE

222S TC090607

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool-4 C					
TYPE OF CONTAINER	*Ge*	*Ge*					
NO. OF CONTAINER(S)	5	5					
VOLUME	40mL	40mL					
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS					

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B21201	SOIL	08-11-09	0945	✓	✓	—						
S09V00 1076	Lo											
↓ 1079	Hi											

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer/Edward Kauer	DATE/TIME: 8-11-09 1240	RECEIVED BY/STORED IN: R Steele/R Steele	DATE/TIME: 8-11-09 1240
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

ORIGINAL

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

A-0003-618(01/06)

Washington River Protection Solutions — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — V09-002-151 — PAGE 2 OF 2

COLLECTOR Hauer, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7468; 1-003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 P37	**ACTUAL SAMPLE DEPTH** 14 to 16'	**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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

☐ ORIGINAL

A 6003 618(01/06)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C-7468 I-003

Sampler Initials and Date: 8-11-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21201	K	No Methanol		32.2	42.3	10.1	No Methanol
B21201	L			32.4	38.8	6.4	
B21201	M			31.9	36.6	4.7	
B21201	N			33.1	38.8	5.7	
B21201	P			32.3	37.5	5.2	
B21201	W	38.4	38.4	38.9	44.3	5.4	10
B21201	X	38.6	38.6	39.0	44.0	5.0	10
B21201	Y	39.3	39.2	39.7	46.3	6.6	10
B21200	*	39.0	38.9	39.4	39.4	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

C7468 C-FARMS HNF-N-576-3 pg 80
Date - 8-12-09 Weather - 70°F to 82°F 0-5 mph wind
NCO's - Krause, Rust cloudy Light Rain
FWS - Bull Clark Hpt - Bill Bernard
0700 - Completed TB7 (Trip Blank)
B21739 V09-003-021 (222 B Labs)
0715 - On site - pre-Job Sign in
0840 - Completed I004 @ 43.5 to 45.5
B21202 V09-002-152
B21203 V09-002-153 } 222 B Labs
B21204 V09-002-154
All 3 Liners full 100%
Field Readings Below Background
1100 - Delivered Samples to 222 B Labs
per Blue Card #5
1230 - No Further Entries this Date [signature] 8-12-09

[signature]
8-12-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8/12/09/0700

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB7

LOGBOOK NO./PAGE HNF-N-576-3 Pg 80

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kauer, Rust

222-S V09-003-021

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21739	3 / 40mL / aGc*.	825501	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

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	0700	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)										

EK 8-12-09

FIELD OBSERVATIONS

WEATHER 75°F Inside

FIELD COMMENTS

N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY E.L. Kauer (PRINT NAME) [signature] (SIGN NAME) 8-12-09 (DATE)

CHECKED BY D.G. Orth (PRINT NAME) [signature] (SIGN NAME) 8-12-09 (DATE)

PRINTED BY LCSUMNER ON 7/28/2009 2:52:40 PM

A-6004-700 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-021	PAGE 1 OF 1
COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: WMA-C Tank Farm - T87	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PS 80	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=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: 222S2009C09

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21739	WATER	8-12-09	07:00	✓
~~S09V00 1179~~ 1045				

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer / [signature]	8-12-09 1100	[signature]	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

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6003-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-12-09/0840

SAF NO.(S) V09-002

LOCATION C7468; I-004

LOGBOOK NO./PAGE HNF-N-576-3 PG 80

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 43.5 ft 45.5 ☐m

BOTTOM OF CASING (bgs) 43.5 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 45.5 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

222-S V09-002-152

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21202	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-153

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21203	1 / 40mL / aGs*	814011 0	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-154

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21204	5 / 40mL / aGs*	814011 0	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21204	3 / 40mL / aGs*	814011 0	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-12-09/0840

SAF NO.(S) V09-002

LOCATION C7468; I-004

LOGBOOK NO./PAGE HNF-N-576-3 PS80

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 43.5 45.5 ☑ ft ☐ m

BOTTOM OF CASING (bgs) 43.5 ☑ ft ☐ m

BOTTOM OF BOREHOLE (bgs) 45.5 ☑ ft ☐ m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauke, Rust

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 Granular Sand Some Rock

FIELD OBSERVATIONS

WEATHER 70°F 0-5 mph wind Cloudy Light Rain

FIELD COMMENTS 3 full Liners 100%

SUPPORT PERSONNEL Hpts 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 Kauke (PRINT NAME) (SIGN NAME) 8-12-09 (DATE)

CHECKED BY RG Orth (PRINT NAME) (SIGN NAME) 8-12-09 (DATE)

PRINTED BY TMJOHANS ON 7/1/2009 10:17:41 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-152 PAGE 1 OF 2

COLLECTOR: Kaiser, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7468; I-004	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 Ps 8-9	ACTUAL SAMPLE DEPTH: 43.5 to 45.5'	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	

DATA TURNAROUND: 75 Days / 75 Days

MATRIX*: A=Air, OL=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)

28°

PRESERVATION: Cool-4C

TYPE OF CONTAINER: Liner

NO. OF CONTAINER(S): 3

VOLUME: 100g

SPECIAL HANDLING AND/OR STORAGE: 222S200A0607

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21202	SOIL	8-12-09	0840 ✓
S09V001131			
1135			
1139			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Erikson/[illegible]	8-12-09 1100	R Steele	8-12-09 1100

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6083-619(01/09)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-152	PAGE 2 OF 2
COLLECTOR KANGE, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY [ ]	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3	ACTUAL SAMPLE DEPTH / 43.5 to 45.5	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz(a,h)anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-615(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-153 PAGE 1 OF 1

COLLECTOR: KAUSE, RUST	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P; DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; I-004	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: 43.5 to 45.5	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=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)

28

SPECIAL HANDLING AND/OR STORAGE: 22252090607

PRESERVATION	Cool-4C
TYPE OF CONTAINER	aGP
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21203	SOIL	8-12-09	0840

509V001127

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
EdKnowe/EdKnowe	8-12-09 1100	RAHolt RJSteele	8.12.09 1180
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

** All VOA samples will be collected using EPA Method 503SA. *

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)VOA - 503S/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

☐ ORIGINAL

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

A-6003-618(01/08)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-154	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	8P	DATA TURNAROUND
KAUER, ROST	SYDNOR, HA	373-3967	WIDRIG, DL			
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY**	☐	75 Days / 75 Days
C7468; 1-004	WMA C Sampling for CHS		V09-002			
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-576-3	43.5 TO 45.5	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=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)

24°

SPECIAL HANDLING AND/OR STORAGE

22S20090607

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool-6 C
TYPE OF CONTAINER	aGs*	aGs*
NO. OF CONTAINER(S)	3	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B21204	SOIL	8-12-09	0840	✓	✓
S09V001119	Lo				
1123	Hi				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
EKauer / RTSteele	8-12-09 1100	RTSteele	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
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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			V09-002-154	PAGE 2 OF 2
COLLECTOR Kaiser, Rost	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. PG 80 HNF-N-576-3	ACTUAL SAMPLE DEPTH 43.5 to 45.5	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene; Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C7468 I-004

Sampler Initials and Date: 8-12-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21204	K	No Methanol		32.4	38.8	6.4	No Methanol
B21204	L			32.9	38.9	6.0	
B21204	M			32.2	39.5	7.3	
B21204	N			32.2	39.4	7.2	
B21204	P			31.8	38.9	7.1	
B21204	W	38.8	38.7	39.2	46.0	6.8	10
B21204	X	38.0	38.0	38.5	45.1	6.6	10
B21204	Y	38.8	38.7	39.3	47.7	8.4	10
B21203	*	39.5	39.4	39.8	39.8	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

C7468 C FARMS HNF-N-576-3 pg 80
Date 8-13-09 weather 63°F to 82°F 0-5mph wind
NCO's Kauer, Rust partly Cloudy
FWS- Bill Clark Hpt - Bill Bernard
0630 - completed TB-8 Trip Blank
B21740 V09-003-022 - 222 S Labs
0700 - ON Site - Pre Job Sign-in, Rwp CO-460
0845 - completed I005 @ 92' to 94'
B21205 V09-002-155
B21206 V09-002-156 } 222S Labs
B21207 V09-002-157
All 3 Liners full 100%
Field Readings Below Background
1120 - Completed I-006 @ 97' to 99'
B21208 V09-002-158
B21209 V09-002-159 } 222 S Labs
B21210 V09-002-160
All 3 Liners full 100%
Field Readings Below Background
1400 - Delivered Samples to 222 S LABS
1430 - No Further Entries this Date [signature] 8-13-09

[signature]
8-13-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8-13-09/0630

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB8

LOGBOOK NO./PAGE HNF-N-576-3 PG 81

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kauer, Rust

222-S V09-003-022

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21740	3 / 40mL / aGs*	82-5501	HCl or H2SO4 to pH <2/Cool~4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

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	0630	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)									

EK 8-13-09

FIELD OBSERVATIONS

WEATHER 75°F Inside

FIELD COMMENTS

N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY Ed Kauer (PRINT NAME) — SIGN NAME — DATE 8-13-09

CHECKED BY RW Plunkett (PRINT NAME) CHPRC — SIGN NAME Roy Plunkett — DATE 8-18-09

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A-6004-700 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-022	PAGE 1 OF 1
COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P	DATA TURNAROUND
SAMPLING LOCATION: WMA-C Tank Farm - TB8	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003	AIR QUALITY: [ ]	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 (TSP)	ACTUAL SAMPLE DEPTH	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: 222S20090609

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	VGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21740	WATER	8-13-09	0630
509VU01046			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer/	DATE/TIME: 8-13-09 1400	RECEIVED BY/STORED IN: RtSteele	DATE/TIME: 8.13.09 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

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6003-618(01/09)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-13-05 / 0845

SAF NO.(S) V09-002

LOCATION C7468; 1-005

LOGBOOK NO./PAGE HNF-N-576-3 P581

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 92 to 94 ☑ft ☐m

BOTTOM OF CASING (bgs) 92 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 94 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR KAUER, Rust

222-S V09-002-155

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21205	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-156

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21206	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-157

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21207	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21207	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for OMS

PAGE 2 OF 2

DATE/TIME 8-13-09 / 0845

SAF NO.(S) V09-002

LOCATION C7468; I-005

LOGBOOK NO./PAGE HNF-N-576-3 Pg 81

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 92 to 94 ☑ft ☐m

BOTTOM OF CASING (bgs) 92 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 94 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

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, Sand some Rock

FIELD OBSERVATIONS

WEATHER 68°F 0-5 mph wind partly Cloudy

FIELD COMMENTS All 3 Liners full 100%

SUPPORT PERSONNEL Hpt Drillers, EWS

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) (SIGN NAME) DATE 8-13-09

CHECKED BY RW Plunkett (PRINT NAME) CHPRC (SIGN NAME) DATE 8-18-09

PRINTED BY TMJOHANS ON 7/1/2009 10:17:48 AM

A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-155

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P
SAMPLING LOCATION: C7468; I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: 92 to 94'	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: 75 Days / 75 Days

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)

PRESERVATION	Cool-4C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222SC090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21205	SOIL	8-13-09	0841
S09V00 1132			
1136			
1140			

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Eckman/	8-13-09 1400	RECEIVED BY/STORED IN: R A Steele	8-13-09 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

ORIGINAL

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			V09-002-157 PAGE 2 OF 2
COLLECTOR Kaye Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P DATA TURNAROUND
SAMPLING LOCATION C7468; I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐ 75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. 861 HNF-N-576-3	ACTUAL SAMPLE DEPTH 92' To 94'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-156 PAGE 1 OF 1

COLLECTOR: KAUER, RUST	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; 1-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY:	
ICE CHEST NO.:	FIELD LOGBOOK NO.: HNF-N-576-3	PG 81 ACTUAL SAMPLE DEPTH: 92 to 94'	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: 222SZC090607

PRESERVATION	Cool~6C										
TYPE OF CONTAINER	aGs*										
NO. OF CONTAINER(S)	1										
VOLUME	40mL										
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS										
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME								
B21206	SOIL	8-13-09	0845	✓							
S09V001128											

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
EB Kauer	8-13-09 1400	Rtbal atstale	8.13.09 1400

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-818(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-157 PAGE 1 OF 2

COLLECTOR: KAUR, RUST	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7468; I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-526-3	9481 ACTUAL SAMPLE DEPTH: 92' to 94'	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: 7S Days / 7S 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)

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SPECIAL HANDLING AND/OR STORAGE: 222S20090607

PRESERVATION	Cool <-20C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	3	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B21207	SOIL	8-13-09	0845	✓	✓
S09V001120					
S09V00 1124					

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kaur / [signature]	8-13-09 1400	[signature] RBSteele	8-13-09 1400

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/09)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-155	PAGE 2 OF 2
COLLECTOR Kause, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; 1-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3	PS 81 ACTUAL SAMPLE DEPTH 92 to 94	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz(a,h)anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-518(01/06)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C74 68 I-105

Sampler Initials and Date: SL 8-13-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21207	K	No Methanol		32.3	39.6	7.3	No Methanol
B21207	L			32.9	38.3	5.4	
B21207	M			32.5	39.1	6.6 ~~6.9~~	
B21207	N			32.5	39.4	6.9	
B21207	P			32.0	38.8	6.8	
B21207	W	38.5	38.5	39.0	45.2	6.2	10
B21207	X	39.1	39.0	39.5	46.1	6.6	10
B21207	Y	38.7	38.7	39.1	47.3	8.2	10
B21206	*	38.8	38.7	39.2	39.2	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-13-09/1120

SAF NO.(S) V09-002

LOCATION C7468; I-006

LOGBOOK NO./PAGE HNF-N-57L-3 P581

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 97 to 99 ☑ft ☐m

BOTTOM OF CASING (bgs) 97 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 99 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

222-S V09-002-158

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21208	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-159

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21209	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-160

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21210	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21210	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

PRINTED BY TMJOHANS ON 7/1/2009 10:17:55 AM

A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-13-09/1120

SAF NO.(S) V09-002

LOCATION C7468; I-006

LOGBOOK NO./PAGE HNF-N-586-3-Pg 81

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 97-99 ☑ft ☐m

BOTTOM OF CASING (bgs) 97 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 99 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

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.)]

Dry Granular Sand

FIELD OBSERVATIONS

WEATHER 80°F 5-10 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) (SIGN NAME) DATE 8-13-09

CHECKED BY RW Plunkett CHPRC (PRINT NAME) Roy Plunkett (SIGN NAME) DATE 8-18-09

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A-6004-701 (REV.0)

ORIGINAL

Washington River Protection Solutions | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | V09-D02-158 | PAGE 1 OF 2

COLLECTOR: KAUCH, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P; AIR QUALITY: ☐; DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; I-008	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG 81	ACTUAL SAMPLE DEPTH: 97 to 99'	COA: 301482ES10	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)

33°

SPECIAL HANDLING AND/OR STORAGE: 222S Z0090607

PRESERVATION	Cool-4C
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
B21208	SOIL	8-13-09	1120
Soil QC			1133
			1137
			1141

CHAIN OF POSSESSION: RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES: RECEIVED BY/STORED IN	DATE/TIME
Ed Kauch	8-13-09 1400	RJSteele	8-13-09 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

ORIGINAL

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

A-6003-618(04/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-158	PAGE 2 OF 2
COLLECTOR Kauer, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; I-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. 15581 HNF-N-576-7	ACTUAL SAMPLE DEPTH 97' to 99'	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/00)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-159 PAGE 1 OF 1

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7468; 1-006	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 Pg	ACTUAL SAMPLE DEPTH: 97' to 99'	COA: 301483ES10
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: BP

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)

PRESERVATION	Cool-6C
TYPE OF CONTAINER	2Gs*
NO. OF CONTAINER(S)	1
VOLUME	40mL
SAMPLE ANALYSIS	See ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222SR090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21209	SOIL	8-13-09	1120
509V00 1129			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer/Ed Kauer	8-13-09 1400	RKSteele/RKSteele	8-13-09 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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

☐ ORIGINAL

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

V09-002-160 PAGE 1 OF 2

COLLECTOR: KAUER, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C7468; 1-006	PROJECT DESIGNATION: WMA C Sampling for CMS	SAF NO.: V09-002	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 (581)	ACTUAL SAMPLE DEPTH: 97' to 99'	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)

32

SPECIAL HANDLING AND/OR STORAGE: 2225 20090607

PRESERVATION	Cool <-7C and >-20C	HEDH/Cool-6 C
TYPE OF CONTAINER	aGs*	aGs*
NO. OF CONTAINER(S)	5	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B21210	SOIL	8-13-09	1120	✓	✓
509V00	1121				
↓	1125				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
EJ Kauer/[illegible]	8-13-09 1400	[illegible] RJS/[illegible]	8-13-09 1400

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-018(01/00)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V09-002-160	PAGE 2 OF 2
COLLECTOR KAUER, RUST	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P DATA TURNAROUND
SAMPLING LOCATION C7468; I-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐ 75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. 158 HNF-N-576-3	ACTUAL SAMPLE DEPTH 97 to 98'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

☐ Original

A-8003-618(04/00)

S&GRP Operating Procedure	GRP-FS-04-G-030 Rev. 0, Chg. F
VOC Soil and Sediment Sampling	Page 11 of 11

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm 67468 I-006

Sampler Initials and Date: JR 8-13-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21210	K	No Methanol		32.5	40.8	8.3	No Methanol
B21210	L			32.2	40.3	8.1	
B21210	M			32.3	39.0	6.7	
B21210	N			31.9	39.4	7.5	
B21210	P			32.5	40.7	8.2	
B21210	W	38.9	38.8	39.2	45.7	6.5	10
B21210	X	38.4	38.4	38.8	43.9	5.1	10
B21210	Y	37.7	37.6	38.1	43.5	5.4	10
B21209	*	38.8	38.8	39.2	39.2	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

C-7468 C-FARMS HNF-N-576-3 pg 82
DATE: 8-17-09 weather - 75°F to 90° 0-5 mph wind
NCO'S - Kaun Rust SUNNY
FWS - Bill CLARK RWP - 460
Hpt - Bill Bergeron
09:30 - Completed TB-9 (Trip BLANK)
B21741 V09-003-023 222S LABS
10:00 - Completed I-007 @ 125 to 127'
B21211 V09-002-161
B21212 V09-002-162 } 222's LABS
B21213 V09-002-163
ML 3 Liners Full 100%
Field Readings Below Background
1355 Completed I-008 @ 135 to 137'
B21214 V09-002-164
B21215 V09-002-165 } 222S LABS
B21216 V09-002-166
ML 3 Liners Full 100%
Field Readings Below Background
1430 - Delivered Samples to 222S LABS per Blue pad #5
1500 - NO Further Entries this Date [illegible] 8-17-09

EK 8-17-09

FIELD CHARACTERIZATION WATER/OTHER LIQUID SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS - QC Sampling

PAGE 1 OF 1

DATE/TIME 8/17/05/0930

SAF NO.(S) V09-003

LOCATION WMA-C Tank Farm - TB9

LOGBOOK NO./PAGE 1WF-N-~~5966~~ 5763 P. 82

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH N/A ☐ft ☐m

BOTTOM OF CASING (bgs) N/A ☐ft ☐m

BOTTOM OF BOREHOLE (bgs) N/A ☐ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 3 TOTAL NUMBER OF CHAINS 1 COLLECTOR Kauer, Rust

222-S V09-003-023

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21741	3 / 40mL / aGs*	825501	HCl or H2SO4 to pH <2/Cool=4C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

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	0930	N/A

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-612 ☐ MO-745 ☐ 6260 ☐ OTHER

FIELD MEASUREMENTS

SAMPLE NO.										
TIME										
pH (unitless)										
TEMP ☐°F ☐°C										
COND (µs/cm)										
TURB. (NTU)										
D.O. (mg/L)										
ORP (mV)										

EK 8-17-05

FIELD OBSERVATIONS

WEATHER 75°F Inside

FIELD COMMENTS

N/A

SUPPORT PERSONNEL N/A

SAMPLES SURVEYED BY RCT ☐ YES ☑ NO

RECORDED BY E.J. Kauer (PRINT NAME) — (SIGN NAME) — 8-17-09 (DATE)

CHECKED BY RW Plunkett (PRINT NAME) CHPRC — Roy Plunkett (SIGN NAME) — 8-18-09 (DATE)

PRINTED BY LCSUMNER ON 7/28/2009 2:52:45 PM

A-6004-700 (REV.0)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-083-023	PAGE 1 OF 1
COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 7P	DATA TURNAROUND
SAMPLING LOCATION: WMA-C Tank Farm - TB9	PROJECT DESIGNATION: WMA C Sampling for CMS - QC Sampling		SAF NO.: V09-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	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=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)

43°

SPECIAL HANDLING AND/OR STORAGE: 2225ZW90609

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21741	WATER	8-17-05	0930	✓
509VOA0647				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer	8-17-05 1430	RISTA	8-17-05 1430

SPECIAL INSTRUCTIONS

(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

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

A-6005-618(01/06)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-17-09/1000

SAF NO.(S) V09-002

LOCATION C7468; I-007

LOGBOOK NO./PAGE HNF-N-576-3, pg 82

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 125-127' ☑ft ☐m

BOTTOM OF CASING (bgs) 125' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 127' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

222-S V09-002-161

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21211	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-162

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21212	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-163

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21213	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21213	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-17-09/1000

SAF NO.(S) V09-002

LOCATION C7468; I-007

LOGBOOK NO./PAGE HNF-N-576-3 pg 22

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 125-127 ☑ft ☐m

BOTTOM OF CASING (bgs) 125' ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 127' ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

FIELD INFORMATION

WHERE ARE SAMPLES LOCATED AT THIS TIME? ☐ WSCF ☑ 222-S ☐ MO-512 ☐ 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.)]

Sandy No Rock

FIELD OBSERVATIONS

WEATHER 79°F Sunny Wind 0-5 mph

FIELD COMMENTS ~~N/A~~ ALL 3 Liners Full 100%

SUPPORT PERSONNEL RCT Drillers, F.W.S.

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) (SIGN NAME) DATE 8-17-09

CHECKED BY RW Plunkett (PRINT NAME) CHPRC Roy Plunkett (SIGN NAME) DATE 8-18-09

PRINTED BY TMJOHANS ON 7/1/2009 10:18:03 AM

A-6004-701 (REV.0)

Unavailable

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-161

PAGE 1 OF 2

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days		
SAMPLING LOCATION: C7468; I-007	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
AIR QUALITY: —			
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 82	ACTUAL SAMPLE DEPTH: 125' - 127'	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

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)

43°

PRESERVATION: Cool-6C

TYPE OF CONTAINER: Liner

NO. OF CONTAINER(S): 3

VOLUME: 160g

SPECIAL HANDLING AND/OR STORAGE

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222S20090807

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21211	SOIL	8-17-09	1000
S094001134	A		
1138	B		
1142			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer	8-17-09 1430	RKleele	8.17.09 1430

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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			V09-002-161	PAGE 2 OF 2
COLLECTOR Karen Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; T-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 82	ACTUAL SAMPLE DEPTH 125'-127'	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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-162 PAGE 1 OF 1

COLLECTOR: Kawa Rast	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7468; I-007	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 p82	ACTUAL SAMPLE DEPTH: 126-127'	COA: 301483E510
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)

43

PRESERVATION	Cool-4C
TYPE OF CONTAINER	40z*
NO. OF CONTAINER(S)	1
VOLUME	40ml
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE: 222S20090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B21212	SOIL	8-17-09	1000	✓
S09V00 1130				

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kawa [signature]	8-17-05 1430	[signature]	8.17.05 1430

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-608(01/06)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-163 PAGE 1 OF 2

COLLECTOR: Rauer Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P; DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C7468; I-007	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: —
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg82	ACTUAL SAMPLE DEPTH: 125'-127'	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)

18"/43"

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool < 7C and >-20C	MEOH/Cool-6 C
TYPE OF CONTAINER	aGr*	aGr*
NO. OF CONTAINER(S)	3	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

22252 0090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B21213	SOIL	8-17-09	1000	✓	—
S09V06 1122					
1126					

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	8-17-09 1430	[signature] RJS/ccc	8.17.09 1430

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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			V09-002-163	PAGE 2 OF 2
COLLECTOR Kauer Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C7468; I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 82	ACTUAL SAMPLE DEPTH 125'-127'	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

☐ ORIGINAL

A-6007-618(01/00)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C7468 I-007

Sampler Initials and Date: [illegible] 8-17-09 10:00

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21213	K	No Methanol		33.0	38.3	5.3	No Methanol
B21213	L			32.4	39.2	6.8	
B21213	M			32.9	38.7	5.8	
B21213	N			32.7	38.2	5.5	
B21213	P			32.0	38.9	6.9	
B21213	W	38.0	38.0	38.5	44.2	5.7	10
B21213	X	38.2	38.1	38.8	45.3	6.5	10
B21213	Y	37.9	37.9	38.4	44.2	5.8	10
B21212	*	38.5	38.5	39.0	39.0	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 1 OF 2

DATE/TIME 8-17-09/1355

SAF NO.(S) V09-002

LOCATION C7468; I-008

LOGBOOK NO./PAGE HNF-N-576-3 B82

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 135 to 137 ☒ft ☐m

BOTTOM OF CASING (bgs) 135 ☒ft ☐m

BOTTOM OF BOREHOLE (bgs) 137 ☒ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

222-S V09-002-164

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21214	3 / 160g / Liner	N/A	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-165

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21215	1 / 40mL / aGs*	8140110	Cool~6C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

222-S V09-002-166

SAMPLE NO.	BOTTLE QTY/SIZE/TYPE	LOT NO.	PRESERVATION	ANALYSIS
B21216	5 / 40mL / aGs*	8140110	Cool <-7C and >-20C	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
B21216	3 / 40mL / aGs*	8140110	MEOH/Cool~6C	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ORIGINAL

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A-6004-701 (REV.0)

FIELD CHARACTERIZATION SOIL/OTHER SOLIDS SAMPLING REPORT

PROJECT(S) WMA C Sampling for CMS

PAGE 2 OF 2

DATE/TIME 8-17-09/1355

SAF NO.(S) V09-002

LOCATION C7468; I-008

LOGBOOK NO./PAGE 1-NF-N-576-3 P582

WELL NAME N/A

WELL ID N/A

ACTUAL DEPTH 135 to 137 ☑ft ☐m

BOTTOM OF CASING (bgs) 135 ☑ft ☐m

BOTTOM OF BOREHOLE (bgs) 137 ☑ft ☐m

SAMPLES COLLECTED

TOTAL NUMBER OF BOTTLES 12 TOTAL NUMBER OF CHAINS 3 COLLECTOR Kauer, Rust

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, Clay, Light Brown

FIELD OBSERVATIONS

WEATHER 94°F 0-5mph wind Sunny

FIELD COMMENTS 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) Ed Kauer (SIGN NAME) 8-17-09 (DATE)

CHECKED BY RW Plunkett CHPRC (PRINT NAME) Ron Plunkett (SIGN NAME) 8-18-09 (DATE)

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☐ ORIGINAL

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-164	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	8P	DATA TURNAROUND
Kauer, Rust	SYDNOR, HA	373-3967	WIDRIG, DL			
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY**		75 Days / 75 Days
C7468; I-008	WHA C Sampling for CMS		V09-002			
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-576-3 PG 82	135 to 137	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=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)

PRESERVATION	Cool-4C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPCIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE
222S20090607

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21214	SOIL	8-17-09	1355 ✓
S09V001215			
1216			
1217			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer/EL Rust 8-17-09	1430	RRitter RKitter 8-17-09	1436
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

☐ ORIGINAL

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			V09-002-164	PAGE 2 OF 2
COLLECTOR KAUER, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; I-008	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	7S Days / 7S Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 P582	ACTUAL SAMPLE DEPTH 135' to 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

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-613(01/08)

Washington River Protection Solutions

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V09-002-165 PAGE 1 OF 1

COLLECTOR: KAUER, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7468; I-008	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3	ACTUAL SAMPLE DEPTH: 135 to 137'	COA: 301483E510
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)

47.

SPECIAL HANDLING AND/OR STORAGE: 222S20090607

PRESERVATION: Cool~6C

TYPE OF CONTAINER: aGs*

NO. OF CONTAINER(S): 1

VOLUME: 40mL

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B21215	SOIL	8-17-09	1355 ✓
Scav00 1214			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kauer, [illegible]	8-17-09 1430	[illegible]	8-17-09 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

** All VOA samples will be collected using EPA Method 5035A.

** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.

(1)VOA - 5035/8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

☐ ORIGINAL

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

V09-002-166 PAGE 1 OF 2

COLLECTOR: Kauer, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: C7468; I-008	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 PG 82	ACTUAL SAMPLE DEPTH: 135 to 137'	COA: 301483E310
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)

47/18

SPECIAL HANDLING AND/OR STORAGE: 222S7009607

PRESERVATION	Cool <-7C and >-20C	HNO3/Cool<-6 C
TYPE OF CONTAINER	[illegible]	[illegible]
NO. OF CONTAINER(S)	5	5
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (7) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B21216	SOIL	8-17-09	1355	✓	✓
Sample 1212 & 1213					

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E. Kauer / [signature]	8-17-09 1430	[signature] R. Stegle	8-17-09 1430

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

☐ ORIGINAL

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

A-6003-619(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-166	PAGE 2 OF 2
COLLECTOR Kaver, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7468; 1-008	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 Pg 82	ACTUAL SAMPLE DEPTH 135 to 137	COA 3014B3ES10	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

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene)

☐ ORIGINAL

A-6003 618(03/06)

Attachment 1 - Sample Record Sheet

SAMPLE RECORD SHEET

Location: C Farm C7468 I-008

Sampler Initials and Date: SL 8-17-09

Sample Number	Sample Suffix[1]	Tare Weight provided (grams)	Tare Weight prior to sample[2] (grams)	Initial Weight[3] (grams)	Total Weight[4] (grams)	Soil Weight[5] (grams)	Methanol in sample bottle (ml)
B21216	K	No Methanol		32.3	39.7	7.4	No Methanol
B21216	L			31.8	39.6	7.8	
B21216	M			32.5	40.2	7.7	
B21216	N			33.2	40.1	6.9	
B21216	P			33.1	39.3	6.2	
B21216	W	38.2	38.1	38.7	42.6	4.0	10
B21216	X	38.2	38.2	38.7	44.0	5.3	10
B21216	Y	38.4	38.3	38.9	44.1	5.2	10
B21215	*	38.7	38.6	39.2	39.2	0	10

[1]Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°°C and -20°C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.

[2]Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.

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

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

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

APPENDIX F

WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTS

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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 A118507

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7468

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 135 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 135 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. S27644

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 NE 1/4 Sec 2 Twn 12N R 26 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	135
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	137	0.0
and boring decommissioned		
with 5 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
0 - 1 ft bgs;		
0 - 1 ft bgs (Dup);		
5 - 7 ft bgs;		
10 - 12 ft bgs;		
14 - 16 ft bgs;		
43.5 - 45.5 ft bgs;		
92 - 94 ft bgs;		
97 - 99 ft bgs;;		
125 - 127 ft bgs;		
135 - 137 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7468		
located on the Hanford Site,		
(C Tank Farm).		

Start Date 08/11/09 Completed Date 08/19/09

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

ENERGYSOLUTIONS

March 17, 2008 MGG-08-5022

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 and Install Probes in Geotechnical Borings

To Whom It May Concern,

Attached is the Notice of Intent to Construct (S27644) Geotechnical Soil Borings. This Notice of Intent form has been completed with information pertaining to 16 borings that will be located on the Hanford Site near the intersection of 7th Street and Buffalo Avenue located in the 200 East Area, within the northwest corner of the 241-C Tank Farm.

These borings are designated as C6391 through C6405 and are being placed in support of the vadose characterization scope. Placement will be performed under the Notice of Intent to Construct Start Card S27644. A majority of these borings will subsequently be decommissioned upon acquisition of geophysical data collection and selective soil sample collection. Selected borings will be utilized for placement of subsurface soil resistivity probes and such construction will be documented with the applicable Well Completion Reports. Probe holes not utilized for probe placement will be documented on the appropriate Decommissioning Report forms.

If you have any questions, please contact me at (509) 375-9587.

Sincerely

Martin G. Gardner, Manager
Remediation and Well Services

jmt

Attachments

CH2M HILL - H. A. Sydnor

FH - G. G. Kelty

Energy*Solutions* - K. D. Reynolds
D. E. Skoglie
MGG File/LB

2345 Stevens Drive, Suite 240 • Richland, WA 99354
509.371.8006 • Fax: 509.371.1906 • 1.888.532.1330 • www.energysolutions.com

ENERGYSOLUTIONS

MGG-08-5022

ATTACHMENT

Notice of Intent to Construct a
Geotechnical Soil Boring

Consisting of 2 pages
including cover sheet

WASHINGTON STATE DEPARTMENT OF ECOLOGY

NOTICE OF INTENT TO CONSTRUCT A

Notification Number S 27644

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, Washington, 99352
2. Consulting Firm (if different from #1): CH2M Hill Phone No. (509) 373-3967
   Address (include city, state, zip) Richland, Washington, 99352

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 NE 1/4 Section 2 Township 12N Range 26 EWM or WWM (*circle one*)
5. Total number of borings to be constructed sixteen (16)
6. Approx construction start date March 26, 2008

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 Hanford, 200 East, SW corner inside C-Tank-farm
8. Tax parcel number N/A
9. Contractor L & I Registration No. DURATFS990K5
10. Well Drilling Company Name Energy Solutions Phone No. (509) 375-9591
11. Well Driller Name Kelly C. Olson License No. 1217
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 27644

RETURN NAME AND MAILING ADDRESS

Name Kelly C. Olson
Mailing Address 2345 Stevens dr.
City Richland State Wa. Zip 99352

Client Name _____

Agency validation date

ECY 040-55 (Rev. 10/02)

NOTICE OF INTENT TO DECOMMISSION A WELL

Notification Number
A 118507

WASHINGTON STATE DEPARTMENT OF ECOLOGY

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): CH2M Hill Phone No. (509) 373-3467
   Mailing Address N/A City Richland State Wa. Zip 99352
3. Well Location: SW 1/4-1/4 of the NE 1/4 Section 2 Township 12N Range 26 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? 16	
O Soil Sampling (No Fee)	How Many?	
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 East, C Tank Farm
7. Notice of Intent No. of well being decommissioned and Unique Well ID Tag # (if applicable) _____
8. Tax parcel number _____ 9. Approx. decommissioning start date April 15, 2008
10. Contractor L & I Registration No. DVRATFS990K5
11. Well Drilling Company Name Energy Solutions Phone No. (509) 375-9541
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 118507

RETURN NAME AND MAILING ADDRESS

Client Name _____

Name David E. Skoglie
Mailing Address [illegible]
City [illegible] State [illegible] Zip [illegible]

Agency Validation
Date: _____

ECY 040-24 (Rev. 7/05)

Variance Request for Direct Push Bore-holes

David E. Skoglie
2345 Stevens Dr.
Richland, Washington 99352

Boring Locations: 200 East Area/C Tank Farm Coordinates SW ¼ NE ¼ S2 12N 26E and
200 West Area/SX Tank Farm Coordinates SW ¼ SE ¼ S12 12N 25E

NOI: Notice of Intent to construct number S27644 and Notice of Intent to decommission number A118507 supporting C Tank Farm characterization.

Notice of Intent to construct number S27649 and Notice of Intent to decommission number A118512 supporting SX Tank Farm characterization.

Description of Activities – Direct Push Characterization (geophysical logging and sampling).

C Tank Farm

A 2.6 inch OD drive point will be used to drive approximately six borings, approximately 18.3 m (60 ft) to 73.1+ m (240+ ft) deep. Geophysical logging will be conducted to determine radiological contamination and moisture content of the adjacent formation. Resisitivity electrodes* may be installed at predetermined locations in some of the boreholes as the borehole is decommissioned. The drive tubing will be removed while the borehole is back-filled with bentonite crumbles. The exception is the area around the resisitivity electrodes, which requires sand. Electrodes will be placed such that there is a minimum 10 foot deep bentonite seal beginning at ground surface and extending into the borehole.

A 2.75 inch OD drive point will be used to drive approximately six borings, ranging from approximately 18.3 m (60 ft) to 73.1+ m (240+ ft) deep. Soil sampling locations will be determined by geophysical logging information. The drive tubing will be removed while the borehole is back-filled with bentonite crumbles.

SX Tank Farm and Vicinity

A 2.6 inch OD drive point will be used to drive approximately twenty borings, approximately 42.7 m (140 ft) deep (top of the lower Cold Creek formation). Geophysical logging will be conducted to determine radiological contamination and moisture content of the adjacent formation. Resisitivity electrodes may be installed at predetermined locations in some of the boreholes as the borehole is decommissioned. The drive tubing will be removed while the borehole is back-filled with bentonite crumbles. The exception is the area around the resisitivity electrode, which requires sand. Electrodes will be placed such that there is a minimum 10 foot deep bentonite seal beginning at ground surface and extending into the borehole.

A 2.75 inch OD drive point will be used to drive approximately twenty borings, approximately 42.7 m (140 ft) deep (top of the lower cold creek formation). Soil sampling locations will be determined by geophysical logging information. The drive tubing will be removed while the bore-hole is back-filled with bentonite crumbles.

Three variances from WAC requirements are requested. These are as follows:

1. A variance from the WAC requirements for depth of a direct push bore-hole (WAC 173-160-451 d) is requested. WAC 173-160-451 (2)(d) states direct push wells shall not be greater than thirty feet in depth unless a variance is obtained. These shallow borings are partially located in previously excavated soil/vadose zone (C and SX Tank Farms and immediate vicinity); interconnection of aquifers is not an issue. Therefore a request to drive tubing greater than 9.1 m (30 ft) using the Hydraulic Hammer Unit (direct push technology) is requested.

   A variance from the WAC requirements for borehole sealing requirements (WAC 173-160-450) is requested. These shallow borings are partially located in previously excavated soil/ vadose zone (C and SX Tank Farms and immediate vicinity); interconnection of aquifers is not an issue. The resisitivity electrodes will need to be in direct contact with sand. Therefore, a request to add sand to specific sections of the bore-holes is requested. Usually, the section of sand is 1.5 m (5 ft) to 2.4 m (8 ft) in length and multiple resisitivity instruments can be placed in a single borehole. Electrodes will be placed such that there is a minimum 10 foot deep bentonite seal beginning at ground surface and extending into the borehole.

   *NOTE 1: Electrodes are generally 2 ft in length by 0.625 inch diameter to allow sufficient area to install and assure a good contact between the probe and the surrounding formation. The sand is tremied into place and a saline solution added to the sand to provide additional assurance of electrical continuity. See drawing (attachment 1) for resisitivity electrode placed in a borehole.

2. A variance from the WAC requirements for decommissioning (WAC 173-160-460) is requested. These shallow borings are partially located in previously excavated soil/vadose zone (C and SX Tank Farms and immediate vicinity); interconnection of aquifers is not an issue.

   Direct push borehole decommissioning requires the casing to be perforated from bottom to land surface and pressure grout the casing. Or withdraw the casing and fill the borehole with cement grout, neat cement, or bentonite as the casing is withdrawn. In some cases the casings will be driven into radiologically contaminated soil. This variance is being requested to leave the radiologically contaminated casing in the soil to prevent contamination of personnel and equipment and by utilizing ALARA principles.

   Upon finding radiologically contaminated casing, the casing would be driven approximately 0.6 m (2 ft) to 1.5 m (5 ft) below ground surface. Either a slurry sealant or a dry bentonite would be placed in the casing to surface. Use of tamping rods, vibration, or other means is advised to prevent bridging of dry bentonite.

Authorization:

J. Caggiano
Washington State Dept. Ecology
Nuclear Waste Program
Richland, WA 99354

Date: 5-11-09

Cheryl Whalen
Cleanup Section Manager
Washington State Dept. Ecology
Nuclear Waste Program
Richland, WA 99354

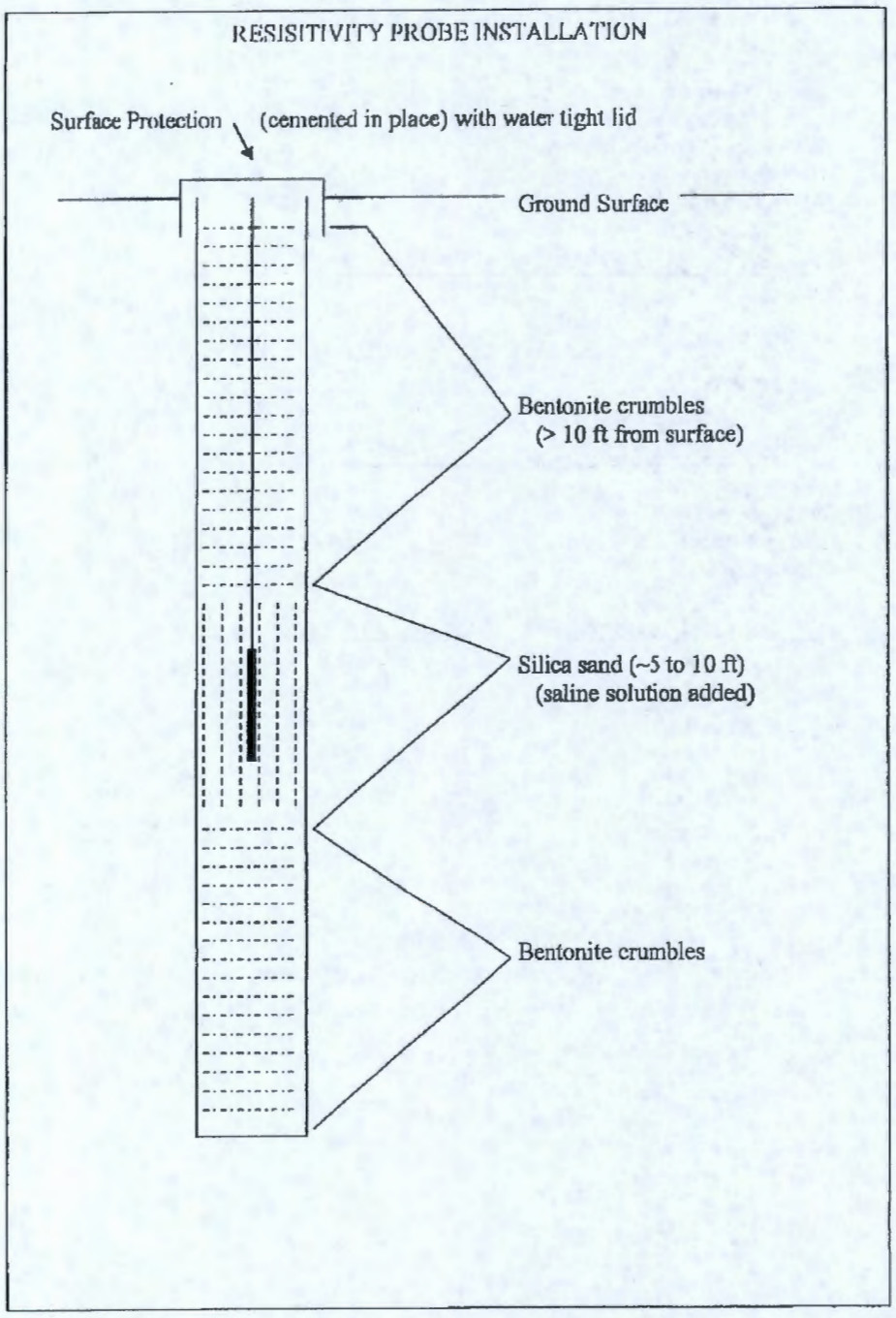
Date: 3-11-09

H. Sydnor
WRPS
Richland, WA.

Date: 3-12-09

D. Skoglie
Energy Solutions
Richland, WA.

Date: 03-12-09


RESISITIVITY PROBE INSTALLATION
Surface Protection
(cemented in place) with water tight lid
Ground Surface
Bentonite crumbles
(> 10 ft from surface)
Silica sand (~5 to 10 ft)
(saline solution added)
Bentonite crumbles

ENERGYSOLUTIONS

August 31, 2009 MGG-09-5266

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 four geotechnical borings. These Water Well report forms have been completed with information from field operations. (reference Notice of Intent Start Card S27644 and Abandonment Start Card A118507). These geotechnical borings are located on the Hanford Site, 200 East Area, C Tank Farm.

The Hanford Site designation for these geotechnical soil borings are C7465, C7467, C7466, and C7468.

The fractional section system topographical location for these geotechnical borings is SW ¼ NE ¼, Section 2, Township 12N, Range 26EWM.

If you have any questions, please contact me at 375-9587.

Very truly yours,

Martin G. Gardner

Martin G. Gardner, Manager
Remediation and Well Services

jmt

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-09-5266

ATTACHMENT

Water Well Report

Consisting of 5 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 A118507

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7465

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 202 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 202 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. S27644

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 NE1/4 Sec 2 Twn 12N R 26 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	202
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 6.8 cu ft bentonite crumbles.	202	0.0
Moisture resistivity probes were placed at a depth of 135 and 86 ft bgs. Sand was placed around the probes.		
Surface Protection was placed on 08/19/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09		
NOTE 1: This boring is C7465 located on the Hanford Site, (C Tank Farm).		

Start Date 07/08/09 Completed Date 08/19/09

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 A118507

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7467

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 202 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 202 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. S27644

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 NE 1/4 Sec 2 Twn 12N R 26

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	174
Borehole was drove vertical.		
Geophysical logging (Gamma and Moisture) were conducted		
The tubing was back-pulled and boring decommissioned with 5.7 cu ft bentonite crumbles.	174	0.0
Moisture resisitivity probes were placed at a depth of 126 and 46 ft bgs. Sand was placed around the probes.		
Surface Protection was placed on 08/19/09.		
Reference: Variance for Direct Push Borings, dated 03/11/09		
NOTE 1: This boring is C7467 located on the Hanford Site, (C Tank Farm).		

Start Date 07/10/09 Completed Date 08/19/09

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 A118507

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C7466

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 133 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 133 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. S27644
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 NE 1/4 Sec 2 Twn 12N R 26

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	133
hydraulic hammer unit mounted		
on a backhoe.		
Borehole was drove vertical.		
The tubing was back-pulled	135	0.0
and boring decommissioned		
with 4.9 cu ft bentonite		
crumbles.		
NOTE 1: Samples obtained		
0 - 1 ft bgs;		
0 - 1 ft bgs (B);		
5 - 7 ft bgs;		
10 - 12 ft bgs;		
14 - 16 ft bgs;		
43.5 - 45.5 ft bgs;		
84 - 86 ft bgs;		
109.5 - 111.5 ft bgs;		
114 - 116 ft bgs;		
133 - 135 ft bgs.		
Reference: Variance for		
Direct Push Borings, dated		
03/11/09.		
NOTE 2: This boring is C7466		
located on the Hanford Site,		
(C 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 08/19/09

ECY 050-1-20 (Rev 3-05)

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APPENDIX G

SAFETY DOCUMENTATION

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ENERGYSOLUTIONS

Date: 07/14/09 Time: 1300 Location: C Farm/C-103	Inspectors: Zane
Activity: Driving Exploration Borehole and Logging	Report #: WRPS-RWZ-09-006

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		

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Approved containers are properly stored.	X		
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.

1) WD40, motor oil, and anti-freeze were being stored in the work area instead of returning to storage location outside of the farm. Issue was brought up to personnel and they were removed during exit at the end of the day.
2) Greasy rags and other debris found uncontrolled around the work area. Issue was brought up to personnel and they were disposed of in waste bag.

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ENERGYSOLUTIONS	ACTIVITY HAZARD ANALYSIS C-103 DIRECT PUSH HYDRAULIC HAMMER UNIT OPERATIONS	AHA-09-004- REV. 0 WRPS

Prepared by:	Robert Zane	Signature:	Date:	6/29/09
Supervisor:	Dave Skoglie	Signature:	Date:	6/29/09
Reviewed by:	Kent Reynolds	Signature:	Date:	6/29/09
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. The scope of this work activity includes up to six 240 ft deep probe holes adjacent to tank C-103 in 241-C-tank farm and performs activities covered by work packages 09-2252 (Operations) and 09-2266 (Set-Up). These probe holes will be used for geophysical logging, restivity probe placement and sampling. All pushes will occur at the predetermined map locations. Three of the planned probe holes are for logging and three are intended to collect up to 8 samples per location.

Specific Work Location(s): Hanford, 200 East Area, inside of 241 C Tank Farm adjacent to tank C-103; Probe hole designations are C7467, C7465, and a third yet unnumbered location referred to as "L1"

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. Push dual-wall system to 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, when requested.

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). • Prior to use, inspect ladder for defects. • 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	• Familiarize personnel with how to describe the location of the work site. • Send personnel to the entry intersections and/or 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 (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 load 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 upon exiting the work area. • 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.
	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.
	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.

Exploration, Sampling, and Decommissioning	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, 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. • When driving the HHU-XL over line-backer wire protector place a piece of 4" x 8" wood, or equivalent, on each side of the line-backer wire protector. • Only trained personnel shall operate equipment (tractor, forklifts, etc.). • Be aware of moving equipment and always make contact with operator before approaching. • 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 within 15 ft. of forklift, tractor, or elevated objects that could fall.
	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.

	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 32 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.
	IH Monitoring	• Perform in accordance with IH Sample, Monitoring Plan RCO-09004 Latest Rev. • If VCZ's require repositioning use CEHA (Chemical Exposure Hazards Analysis) 1108-396 Latest Rev.
	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. • If gloves come in contact with wetted surface, doff and replace with new pair.
	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
Technical POC / Harold Sydnor	373-3967	438-1307
Mike Powers (Safety)	376-5597	308-7386

***ENERGYSOLUTIONS* ACTIVITY HAZARD ANALYSIS ACKNOWLEDGEMENT**

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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