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RPP-37625, Rev. 0

# Completion Report for UPR-200-E-86 Direct Push Drilling and Sampling


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U.S. Department of Energy Contract DE-AC27-99RL14047


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Abstract: This report is a summary of direct push activities relating to driving small diameter probe holes, geophysical logging and soil sampling at UPR-200-E-86.



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## CONTENTS

1.0 INTRODUCTION ..... 1
2.0 SUMMARY OF ACTIVITIES ..... 1
3.0 DIRECT PUSHING, SAMPLING AND LOGGING DETAILS ..... 2
3.1 DIRECT PUSHING ..... 2
3.2 SOIL SAMPLING ..... 3
3.3 GLOBAL POSITIONING SATELLITE SURVEYING ..... 4
3.4 GEOPHYSICAL LOGGING ..... 4
4.0 BOREHOLE DECOMMISSIONING AND RESISTIVITY PROBE INSTALLATION ..... 5
5.0 ENVIRONMENTAL, SAFETY AND HEALTH ..... 5
6.0 REFERENCES ..... 6

APPENDICES

A EXPLANATION OF DOWN TIME ..... A-i
B FSWO-DOW-024, DESCRIPTION OF WORK ..... B-i
C GLOBAL POSITIONING SYSTEM COORDINATES AND MAPPING ..... C-i
D DRILLING AND SAMPLING DAILY WORK RECORDS ..... D-i
E GEOPHYSICAL LOGS AND REPORTS ..... E-i
F CHAIN OF CUSTODY FORMS AND FIELD LOGBOOK ENTRIES ..... F-i
G WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTATION ..... G-i
H SAFETY DOCUMENTS ..... H-i

## TABLES

Table 1. Sample Intervals. ..... 3
Table 2. Logging Borehole Placement ..... 5

## TERMS

| | |
|---|---|
| CH2M HILL | CH2M HILL Hanford Group, Inc. |
| DOE | U.S. Department of Energy |
| Energy*Solutions* | Energy*Solutions* Federal Services, Inc. |
| ICPMS | inductively coupled plasma mass spectrometry |
| ID | inside diameter |
| OD | outside diameter |
| RPP | River Protection Project |
| WAC | *Washington Administrative Code* |

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# COMPLETION REPORT FOR UPR-200-E-86 DIRECT PUSH DRILLING AND SAMPLING

## 1.0 INTRODUCTION

The U.S. Department of Energy (DOE) assigned the River Protection Project (RPP) CH2M HILL Hanford Group, Inc. (CH2M HILL) Richland, Washington, to collect and provide subsurface data at a known unplanned release associated with a pipeline break. Radioactive fluids were being transferred from the 244-AR Vault to C Tank Farm when the waste loss occurred. The break was located near the southwest corner of the C Tank Farm located in 200 East Area of the Hanford Site. CH2M HILL contracted Energy*Solutions* Federal Services, Inc. (Energy*Solutions*) and Pacific Northwest Geophysics to perform the field activities required to gather this data. This data provides information about the distribution and movement of contaminants in the vadose zone in the immediate area of the spill. The data will be used for an improved understanding of the distribution and migration of contaminants in the vadose zone, should contamination still be present.

FSWO-DOW-024, *Description of Work: 241-C Farm Direct Push Characterization at UPR 200-E-86 Site*, (see Appendix B) provides a detailed description of the scope of work performed. Energy*Solutions* was responsible for providing 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, subcontract geophysical logging services, and technical support and preparing final reports. The following appendices contain copies of documentation generated during the performance of the above work scope.

Appendix A, Explanation of Down Time
Appendix B, FSWO-DOW-024, Description of Work
Appendix C, Global Positioning System Coordinates and Mapping
Appendix D, Drilling and Sampling Daily Work Records
Appendix E, Geophysical Logs and Reports
Appendix F, Chain of Custody Forms and Field Logbook Entries
Appendix G, Washington State Department of Ecology Documentation
Appendix H, Safety Documents

## 2.0 SUMMARY OF ACTIVITIES

In September 2007, drilling equipment and support items were staged at the unplanned release location. FSWO-DOW-024 was prepared and submitted for release early October 2007. The description of work provides detailed work instructions and other information for conducting

characterization efforts at the UPR 200-E-86 site, near the southwest corner of C Tank Farm. A hydraulic hammer unit was used for placing exploration boreholes for geophysical logging and sample collection. Nine pre-selected direct push locations and two alternates were identified for the initial investigation. The initial investigation included geophysical logging for moisture and gross gamma data. Three of the nine investigative boreholes produced data that warranted sampling. Three offset boreholes were pushed for sampling purposes. One borehole (C5947) which was advanced to 61.72 meters (202.5 feet) was also surveyed using a gyroscope to record degree of deviation from vertical. Detailed results from these logging efforts are provided in Appendix E. While pushing one of the three sampling boreholes, the tubing for C5952 deviated from vertical and encountered exploratory borehole C5951 at 13.41 meters (44.0 feet). Sample borehole C5952 was then abandoned. A second sampling borehole (C5952A) was then pushed adjacent to the original site. Sampling at depths less then 6.1 meters (20 feet) proved to be ineffective. Frequently, the sampler was retrieved partially empty. Sampling information is provided in Table 1 and Appendix F.

The hydraulic hammer unit and associated personnel initially began this task September 24, 2007. Because of CH2M HILL administrative requirements, actual advancement on the first borehole didn't commence until November 1, 2007. The task was completed March 27, 2008. Not including the five weeks of administrative and mobilization issues, there were 87 field days that the hydraulic hammer unit and crew were dedicated to the UPR 200-E-86 activities. There were 241.5 hours of down time associated with this task. Appendix A summarizes the down time. For exact dates of down time, refer to the Drilling and Sampling (Percussion) Daily Work Records in Appendix D. After all boreholes were decommissioned, demobilization and preparation for the hydraulic hammer unit to enter C Tank Farm commenced. Because of new survey requirements, the hydraulic hammer unit required thorough cleaning prior to entering C Tank Farm.

## 3.0 DIRECT PUSHING, SAMPLING AND LOGGING DETAILS

### 3.1 DIRECT PUSHING

Per FSWO-DOW-024, 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 logged for moisture and gross gamma, the data was reviewed by CH2M HILL and sample locations and depths were selected. At designated boreholes, a second location within 0.6 meter (2 feet) of the exploratory hole was then pushed for sample retrieval.

## 3.2 SOIL SAMPLING

Soil sampling with the rotary hammer unit was accomplished with the dual-wall sampling system. With the dual-wall system, once sample depth has been reached, the inner rod with the dummy drive tip is removed, and the drive tip is replaced with a sampler. The sampler consists of a 6.67 centimeter (2.625-inch) 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). Table 1 shows locations, intervals, sample numbers and percent sample recovered.

Table 1. Sample Intervals.

| Borehole Number | Depth in Feet | Sample Number | Percent Recovery |
|---|---|---|---|
| C5952 | 9.5 – 11.5 | B1RTF8 | 10% |
| | 11.5 – 13.5 | B1RTF9A | 25% |
| C5952A | 9.5 – 11.5 | B1RTH0 | 10% |
| | 14.0 – 16.0 | B1RTH1 | 50% |
| | 60.0 – 62.0 | B1RTH2 | 100% |
| | 80.0 – 82.0 | B1RTH3 | 100% |
| | 100.0 – 102.0 | B1RYR7 | 100% |
| | 118.0 – 120.0 | B1RYR8 | 100% |
| | 140.0 – 142.0 | B1RYR9 | 100% |
| C5958 | 10.5 – 12.5 | B1RYT0 | 70% |
| | 54.0 – 56.0 | B1T2P1 | 100% |
| | 79.0 – 81.0 | B1T2P2 | 100% |
| | 100.0 – 102.0 | B1T2P3 | 75% |
| | 114.0 – 116.0 | B1T2P4 | 100% |
| | 116.0 – 118.0 | B1T2P5 | 100% |
| | 134.5 – 136.5 | B1T2P6 | 100% |
| C5960 | 18.0 – 20.0 | B1T2P7 | 100% |
| | 41.5 – 43.5 | B1T2P8 | 90% |
| | 59.0 – 61.0 | B1T2P9 | 100% |
| | 83.0 – 85.0 | B1T2R0 | 100% |
| | 98.0 – 100.0 | B1TNK6 | 100% |
| | 115.0 – 117.0 | B1TNK7 | 100% |
| | 117.0 – 119.0 | B1TNK8 | 100% |
| | 138.0 – 140.0 | B1TNK9 | 100% |

Samples were obtained and analyzed in accordance with CH2M HILL Sample Authorization Form #V08-001 and V08-002. Samples were analyzed for anions, total organic carbons,

conductivity, pH, gamma energy and radioisotopes using inductively coupled plasma mass spectrometry (ICPMS).

The sample tip, drive head, sample liners, and inner sample barrel were cleaned by Fluor Hanford 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 form, chain of custody forms, and field logbook notes are provided in Appendix F.

## 3.3 GLOBAL POSITIONING SATELLITE SURVEYING

Using a Trimble[1] 5800 Global Positioning Satellite Survey system and per FSWO-DOW-024, the original locations of the exploratory boreholes were identified and marked with paint and stakes. When the task was completed and the boreholes decommissioned, each successful exploratory and sample borehole was surveyed and recorded a second time for final documentation. These coordinates were placed on a map showing their locations in direct relation to the underground piping in the general vicinity. The coordinates, elevation 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 original nine exploration 6.35 centimeter (2.5-inch) probe boreholes. For the geophysical logging, a portable small diameter logging system was used to collect moisture and gross gamma data. The gross gamma scintillation detector is a sodium-iodide crystal (2.54 centimeters [1 inch] long), which is hydroscopic and is enclosed in a hermetically sealed can for integrity. Results showed that eight of the nine boreholes had only background activity. C5959 was the only borehole that displayed above background limits. It had a maximum gamma activity of 40,000 pCi/g of cesium-137 ($^{137}Cs$). One borehole (C5947) was advanced beyond the original target depth of 31.7 meters (104 feet) to a depth of 61.72 meters (202.5 feet). A gyroscope survey was conducted, which showed that the bottom of the borehole deviated to the northeast, 1.62 meters (5.32 feet) from vertical. A report detailing calibration, survey results and data interpretation, as well as copies of the collected and processed log data, are provided in Appendix E.

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

## 4.0 BOREHOLE DECOMMISSIONING

Decommissioning of all the boreholes was conducted in accordance with *Washington Administrative Code* (WAC) 173-160 requirements. While decommissioning the sample and logging boreholes, the casing was back pulled while bentonite crumbles were simultaneously added to the casing until it reached the surface.

Five of the nine logging boreholes were used for resistivity probe installation. Once logging was completed in the borehole, the drive tip was knocked out of the bottom of the tubing, and the tubing back pulled approximately 1.52 meter (5 feet). The borehole was filled with silica sand from bottom to the depth at which the resistivity probe was to be placed. The resistivity probe was placed and additional silica sand (approximately 1.52 meter [5 feet]) was then added to the borehole, encasing the probe in sand. Fifteen to 19 liters (4 to 5 gallons) of saline water was then added. Bentonite crumbles were then placed from above the silica sand to surface while back pulling the 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.

Table 2 shows the logged borehole numbers, coordinates, pushed depth and resistivity probe placement depth.

Table 2. Logging Borehole Placement.

| Borehole# | Northing | Easting | Elevation | Hole Depth | Probe Depth |
|---|---|---|---|---|---|
| C5943 | 136476.6 | 575044.1 | 205.404 | 104 feet | 90 feet |
| C5947 | 136479 | 575058.1 | 204.996 | 202.5 feet | 150 feet |
| C5951 | 136473.4 | 575060.1 | 205.126 | 104 feet | NA |
| C5953 | 136466.8 | 575046.9 | 205.6 | 142 feet | NA |
| C5955 | 136468.3 | 575054.4 | 205.421 | 104 feet | NA |
| C5957 | 136463.5 | 575058.4 | 205.659 | 144 feet | 143 feet |
| C5959 | 136457.8 | 575048.9 | 205.848 | 104 feet | 95 feet |
| C5961 | 136448.9 | 575047.8 | 206.745 | 104 feet | NA |
| C5963 | 136454.4 | 575062.9 | 205.652 | 104 feet | 95 feet |

## 5.0 ENVIRONMENTAL, SAFETY AND HEALTH

During the UPR 200-E-86 activities, the job site was surveilled by Energy*Solutions* Operations Safety and CH2M HILL Tank Farm Industrial Hygiene and Safety personnel for safety and health compliance. The results of the surveillances performed by Energy*Solutions* are provided in Appendix H. 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.

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

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

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

# APPENDIX A

# EXPLANATION OF DOWN TIME

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## EXPLANATION OF DOWN TIME

**Excessive Wind = 54 hours.** CH2M HILL procedures call for tank farm work stoppage when winds are in excess of 20 miles per hour.

**CH2M HILL Company Function = 2.5 hours.** Veterans Day Lunch

**Rain Delay = 22 hours.** CH2M HILL RWP requires dry conditions for sampling activities.

**No Operator Support = 9.0 hours.** Fluor Hanford had no operators available to support sampling activities.

**Training = 9 hours.** Energy Solutions HHU operators were in scheduled training.

**Winter Hazards = 29.5 hour.** CH2M HILL procedures specify conditions that constitute an unsafe work environment.

**Emergency Drill = 2.5 hours.** Take cover drill.

**No HPT Coverage = 80 hours.** CH2M HILL HPT pulled from the job to cover SX Farm work.

**Air Monitor Issues = 24 hours.** CH2M HILL equipment required electrical cord inspections.

**Hydraulic Hammer Unit Maintenance = 9.0 hours.** Required maintenance.

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# APPENDIX B

## FSWO-DOW-024, DESCRIPTION OF WORK

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FSWO-DOW-024
Revision 0

# DESCRIPTION OF WORK
# 241-C FARM DIRECT PUSH CHARACTERIZATION AT UPR 200-E-86 SITE

K. D. Reynolds

October 2007

Prepared for CH2M HILL Hanford Group, Inc.

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

## CONTENTS

1.0 INTRODUCTION AND BACKGROUND ..... 1
1.1 INTRODUCTION ..... 1
1.2 TANK FARM BACKGROUND ..... 3
2.0 METHODOLOGY ..... 6
3.0 PUSH LOCATIONS ..... 7
3.1 PUSH LOCATION DOCUMENTATION ..... 7
3.2 PUSH LOCATION TABLES AND NUMBERING ..... 8
4.0 WORK TASKS ..... 9
4.1 SITE SETUP ..... 9
4.2 PUSH POINT CONTROL ..... 9
4.3 GEOPHYSICAL LOGGING ..... 10
5.0 SAMPLING ..... 10
5.1 SAMPLING PROCESS ..... 10
5.2 CLEANING ..... 11
5.3 RINSEATE SAMPLES ..... 11
5.4 EXPLORATION AND SAMPLING PUSH HOLE DECOMMISSIONING ..... 11
6.0 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM ..... 11
6.1 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM KEY ELEMENTS ..... 12
6.2 CH2M HILL REQUIRED ENVIRONMENTAL, SAFETY, AND HEALTH ELEMENTS ..... 13
7.0 QUALITY ASSURANCE ..... 13
8.0 REFERENCES ..... 13

## FIGURE

Figure 1. General Location Map. ..... 5

## TABLE

Table 1. Push Locations for UPR 200-E-86 Investigation. ..... 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., Western 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 |
| UPR | unplanned release |
| WAC | *Washington Administrative Code* |
| Well ID | Well identification |
| WMA | Waste Management Area |

FSWO-DOW-024, Rev. 0

# DESCRIPTION OF WORK: 241-C FARM DIRECT PUSH CHARACTERIZATION AT UPR-200-E-86 SITE

## 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 sub-surface 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. In support of the eventual retrieval of this waste, the Single-Shell Tank Program Vadose Zone Project was given responsibility for collecting and providing subsurface data from the SST farm facilities. This data 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.

RPP-16608, *Site-Specific Single-Shell Tank Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U* describes work that was performed during Phase 1 of the WMA C investigation. The Field Investigation Report for WMA C is presently (June 2007) being prepared. Those documents describe investigation of a gamma anomaly associated with tank 241-C-105 and investigation of an unplanned release (UPR) associated with diversion box 241-C-152 (UPR-200-E-82).

Since that work has been done, a well-to-well resistivity survey, RPP-RPT-31558, *Surface Geophysical Exploration of the C Tank Farm at the Hanford Site*, has been performed that identifies areas in the farm where low resistivity anomalies are present. Due to the nature of wastes stored in the single-shell tanks, these anomalies could be waste related. In addition, a C Farm Closure Corrective Measures Study is in the planning stages. A work plan to direct field activities is being prepared. This work plan is designed to guide data collection, which will support the Closure Corrective Measures Study. Data gathered during this interim will be used to guide further characterization activities as the effort to close the C tank farm progresses.

CH2M HILL Hanford Group, Inc. (CH2M HILL) has recommended that the direct push technology be initially used to sample the subsurface at WMA C. The primary characterization goal is to determine the lateral extent and magnitude of migration of technetium-99 and other contaminants associated with tanks and UPRs that were not investigated during the Phase 1 RCRA Corrective Actions investigation. This direct push investigation is intended to serve as a means to ascertain whether future investigations of the deep vadose zone are needed, and if so provide guidance for these investigations. By using direct push technology, several characterization goals can be met. These goals are as follows.

1. Characterize the C-101 tank to help determine its true leak status.
2. Provide initial characterization samples from the regions around tanks C-201 through C-204.
3. Investigate areas (near tanks C-101, C-104, C-105, and C-108) identified by surface geophysical exploration (SGE) as having low resistivity.
4. Investigate two major UPR sites (UPR-200-E-81 and UPR-200-E-86) associated with known pipeline leaks.
5. Investigate catch tank 241-C-301.
6. Characterize a zone of apparent cobalt-60 movement near tanks C-108 and C-109.
7. Investigate the lateral extent of spectral gamma inferred plumes.
8. Install electrodes at depth so that SGE can provide better resolution.

Optimally available field teams will collect information for these investigations while the data quality objective process finishes identifying other information needed to support closure of the tank farm upon completion of retrieval activities. Chemical and radiological analyses of samples collected will be done in accordance with a list of priorities provided to the analytical laboratory by CH2M HILL. This is to assure that the maximum benefit is gained from the limited sample volume that is collected. The first area planned for investigation is the UPR-200-E-86 location. This UPR is contained in item 4 in the above list.

Report UPR-200-E-86 describes a waste loss event associated with a pipeline break near the southwest corner of the C tank farm. Fluids were being pumped from the 244-AR vault to the C tank farm. It is estimated that approximately 79102 L (17,400 gal) of fluid that contained an estimated 21,000 Ci of cesium-137 were lost to the soil (RHO-CD-673) from this line break. Based on the ratio of technetium-99 to cesium-137 in the irradiated fuel (approximately $3 \times 10^{-4}$ Ci technetium-99/Ci cesium-137), approximately 6 Ci of technetium-99 were lost. This waste stream most likely originated from the water washing of Plutonium-Uranium Extraction (Plant) (PUREX) sludge intended to remove cesium-137 (and other waste soluble components) from the sludge before acidification and strontium-90 recovery.

A multi-discipline team consisting of CH2M HILL personnel, other subcontractors, and Energy*Solutions* Federal Services, Inc., Western Operations (Energy*Solutions*) is planning to implement the field activities of the site-specific work plans.

Statement of Work Requisition 159611, *Drilling and Related Characterization Services,* Rev. 0 was prepared to conduct 241-C 200 UPR-200-E-86 characterization activities pursuant to the

Terms and Conditions of the Blanket Master Agreement Number 31672-2. The Statement of Work directs tasks and objectives for characterization that use an impact-driven, shallow-soil investigative technique (e.g., hydraulically powered hammer unit).

This description of work (DOW) provides the work instructions for conducting characterization efforts adjacent to the 241-C Tank Farm at the UPR 200-E-86 site. The scope of work involves providing equipment and personnel to conduct direct push activities; supporting soil sample collection; supporting the installation of sub-surface monitoring equipment; providing safety oversight and geophysical logging services; providing global position survey support; attending meeting and planning sessions; and providing a written report documenting field activities and data collection at the conclusion of activities.

The objectives of the investigative efforts are as follows.

- Collect data to support an improved understanding of the nature and extent of contaminants (if still present) in the vadose zone.
- Collect data to support an improved understanding of vadose zone parameters affecting contaminant fate and an improved understanding of transport required to perform risk assessments.
- Provide WMA-specific information on the source, nature, and extent of contamination for the planned activities.
- Provide WMA-specific characterization programs to address information gaps identified through a data quality objective process.

## 1.2 TANK FARM BACKGROUND

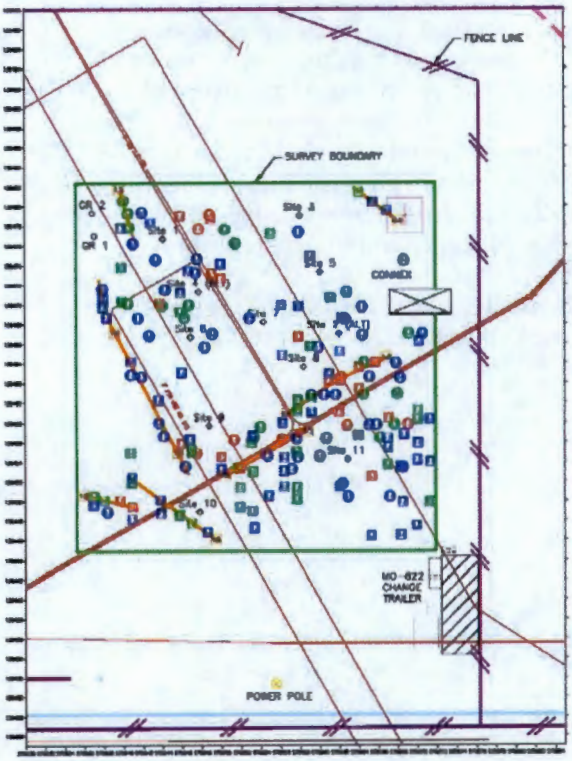
The Hanford Site has 149 underground SSTs that store hazardous radioactive waste. These tanks are grouped into 12 tank farms that are further grouped into eight WMAs and are regulated under RCRA. Many of these tanks have leaked, and there have been leaks in the associated infrastructure (e.g., pipelines, diversion boxes). Some of the leaked waste has entered groundwater. This DOW provides direction for field operations relative to characterization activities at UPR 200-E-86.

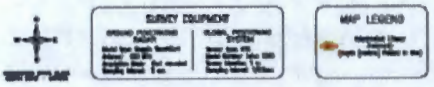
One large transfer line leak inside the WMA (UPR-200-E-81) and another leak outside (at UPR-200-E-86), but immediately adjacent to the boundary of the WMA, are indicated in the historical record. The estimated releases are larger than most of the other in-farm releases and functionally equivalent to a major tank leak event. There are no environmental data associated with UPR-200-E-81 where an estimated 163659 L (36,000 gal) were released. Dose rates from this event were reported as 5 RAD at 6.1 m (20 ft). The contaminated liquid reportedly seeped into the ground and the area was subsequently covered with 0.5 m (18 in.) of gravel. UPR-200-E-86 resulted in an estimated 25,000 Ci of Cs-137 being released to the environment. The dose rate associated with soils collected during investigation of this site was 5 RAD at 0.3 m (1 ft). This site was covered with clean material and a portion additionally covered with shotcrete. These two sites present a major portion of the risk associated with closure of WMA C.

Report UPR-200-E-86 describes a waste loss event associated with a pipeline break near the southwest corner of the C tank farm. Fluids were being pumped from the 244-AR vault to the C tank farm. Approximately 79 102 L (17,400 gal) of fluid that contained approximately 21,000 Ci of cesium-137 were lost to the soil (RHO-CD-673). Based on the ratio of technetium-99 to cesium-137 in the irradiated fuel (approximately $3 \times 10^{-4}$ Ci technetium-99/Ci cesium-137), approximately 6 Ci of technetium-99 were lost. This waste stream most likely originated from the water washing of PUREX sludge intended to remove cesium-137 (and other waste soluble components) from the sludge before acidification and strontium-90 recovery.

Figure 1 below is a general location map of the Hanford Site with the 241-C Complex identified. Specific push locations are also identified in Figure 1 at the UPR 200-E-86 location.

Figure 1. General Location Map.




| Site Number | Well ID | Easting (WA State Plane) | Northing (WA State Plane) |
|---|---|---|---|
| Site 1 | C5943 | 575044.06 | 136476.67 |
| Site 2 (ALT) | C5945 | 575062.00 | 136487.00 |
| Site 3 | C5947 | 575068.14 | 136479.00 |
| Site 4 (ALT) | C5949 | 575047.71 | 136471.28 |
| Site 5 | C5951 | 575060.09 | 136473.30 |
| Site 6 | C5953 | 575048.88 | 136466.66 |
| Site 7 | C5955 | 575054.30 | 136468.20 |
| Site 8 | C5957 | 575058.40 | 136463.60 |
| Site 9 | C5959 | 575048.74 | 136457.70 |
| Site 10 | C5961 | 575047.80 | 136448.90 |
| Site 11 | C5963 | 575062.89 | 136454.27 |

C TANK FARM GPR

DATE: AUGUST 2007 | FIGURE 1

5

### 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 below. Sample depths are to be determined by moisture and gamma logs. Deepest targeted samples are at 30.5 m (100 ft) below ground surface (bgs) or refusal (whichever comes first). Three soil samples are planned at each of nine multiple sample sites. The approximate planned depths (based on geophysical log results) for collection of soil samples are 12.2 m (40 ft), 21.3 m (70 ft) and 29.8 m (98 ft) bgs or just above refusal.

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 gamma and neutron moisture instrumentation. The logging data is reviewed by the CH2M HILL 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 requirements (e.g., filled with bentonite or bentonite/cement grout as required) as the push tubing is extracted. A dual wall system (6.67 cm [2.625 in.] OD) will be deployed to collect samples in the nine sampling push locations. Descriptions of each technique follow below.

### 2.1 MULTIPLE SAMPLE PUSH

There are nine sites in the UPR 200-E-86 area that are planned as multiple sampling locations. Three soil samples are planned at each of the nine sites. The soil sample planned depths are

12.2 m (40 ft), 21.3 m (70 ft) and 29.8 m (98 ft) or just above refusal. The precise sampling depths will be based on review of the geophysical logging data collected from the exploratory push. The dual wall percussion system will be utilized to obtain multiple samples in a single push location.

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 and materials 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. Upon removal of the inner string of tubing, 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; and 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, "Minimum Standards for Construction and Maintenance of Wells," requirements.

## 3.0 PUSH LOCATIONS

### 3.1 PUSH LOCATION DOCUMENTATION

Figure 1 above is a general location map of the UPR 200-E-86 area adjacent to the 241-C Tank Farm. Specific push locations are also identified in Figure 1. These locations were selected through an iterative process using ground-penetrating radar scan data and as-built infrastructure drawing reviews. The two data sets were compared and sites for placement of push locations were selected based on the highest level of confidence achievable on review of specific locations and ground scan trace comparisons. The final location coordinates of the selected sites (determined from the ground-penetrating radar and as-built review) were plotted with computer-aided drafting (see Figure 1 above). Push locations will be documented on Well Information

Reports/Field Activity Reports. In addition to the coordinate position of the probe location, the push depth, geophysical log date 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 5595] the Well ID of the subsequent sampling push is C 5596). 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 UPR 200-E-86 investigations by the Hanford Site Well Coordinator.

Table 1. Push Locations for UPR 200-E-86 Investigation.

| Site Number | Well ID | Easting (WA State Plane) | Northing (WA State Plane) |
|---|---|---|---|
| Site 1 | C5943 | 575044.08 | 136476.67 |
| Site 2 (ALT) | C5945 | 575062.00 | 136467.00 |
| Site 3 | C5947 | 575058.14 | 136479.00 |
| Site 4 (ALT) | C5949 | 575047.71 | 136471.28 |
| Site 5 | C5951 | 575060.09 | 136473.30 |
| Site 6 | C5953 | 575046.88 | 136466.66 |
| Site 7 | C5955 | 575054.30 | 136468.20 |
| Site 8 | C5957 | 575058.40 | 136463.60 |
| Site 9 | C5959 | 575048.74 | 136457.70 |
| Site 10 | C5961 | 575047.80 | 136448.90 |
| Site 11 | C5963 | 575062.89 | 136454.27 |

# 4.0 WORK TASKS

## 4.1 SITE SETUP

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

Tank farms radiological control technicians and nuclear chemical operators will be onsite to support work during activities that create potential personnel exposure. Contamination control measures will consist of laying spill protection material beneath the equipment (when required). Spill protection can consist of placement of rubber matting, felt and/or plastic sheeting on and around the direct push unit when necessary and prudent. Control of the work area and control of potential contamination is 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. As the mapped points are investigated, all due caution and careful observation of the push advance rates and resistance will be observed to preclude damage to any tank farm infrastructures should the as-built drawings be in error. If rod advance indicates that obstructions are present, push advance will stop, the direct push equipment and work area will be placed in safe condition and the Vadose Project Engineer (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. CH2M HILL 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. Fast scan gross gamma logging.
2. Extended count time spectral gamma logging for selected intervals as deemed necessary.
3. Additional logging with the "Red" and/or "Green" Geiger/Muller equipment, if necessary, based on observed fast scan gamma log results.
4. Moisture logging.

Logging data will be collected from the total depth to surface. The logging analyst, Energy*Solutions* site personnel and the CH2M HILL Vadose Project Engineer will review the field log data. Based on the log data sets, a sampling interval may be selected. Logging activities will be conducted in accordance with applicable Pacific Northwest Geophysics and Energy*Solutions* procedures and the Energy*Solutions* Quality Assurance and Data Management Plans.

## 5.0 SAMPLING

### 5.1 SAMPLING PROCESS

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

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

### 5.2 CLEANING

For quality control purposes, 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 sub-contracted by CH2M Hill 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 non-phosphate cleaner. The push materials will be visibly clean 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 CH2M HILL and their designated sub-contract personnel.

### 5.4 EXPLORATION AND SAMPLING PUSH HOLE DECOMMISSIONING

Applicable WAC requirements contained in WAC 173-160 will be used to control and guide actions for decommissioning the sampling and exploratory probe holes. Each probe and sampling hole will be filled with bentonite, a bentonite slurry and/or grout (neat cement or cement-bentonite mixture) during the push rod extraction process.

## 6.0 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM

The primary concern for Energy*Solutions* and the client (CH2M HILL) is the safety of personnel assigned to perform activities related to the UPR 200-E-86 investigation/characterization. To address these issues and assure that all Energy*Solutions*, CH2M HILL, 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 outlining the specific activity hazards and the mitigation methodologies has been prepared. The documentation governing the operation of the direct push rig, sampling, and decommissioning activities (AHA-07-007, *UPR-200-E-86 Characterization Hydraulic Hammer Unit Operations*, Revision 0, or most current revision) is included as a portion of the CH2M HILL Tank Farm Work Package.

Both Energy*Solutions* Safety personnel and CH2M HILL 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 CH2M HILL 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, UPRs, and exposures.

### 6.2 CH2M HILL REQUIRED ENVIRONMENTAL, SAFETY, AND HEALTH ELEMENTS

CH2M HILL has provided a comprehensive list of CH2M HILL, DOE and Hanford Site-specific procedures and requirements in Section 7.3 of Statement of Work Requisition #151227. During execution of the work scope detailed in this DOW, Energy*Solutions* will comply with all applicable directives and orders resulting from CH2M HILL 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-07-007, Rev 0, *UPR-200-E-86 Characterization*, Rev. 0, Energy*Solutions* Technical Services, Richland, Washington.

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

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.

RHO-CD-673

RPP-16608, *Site-Specific Single-Shell Tank Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U* Rev. 1, prepared by CH2M HILL Hanford Group, Inc., for U.S. Department of Energy Office of River Protection, Richland, Washington.

RPP-RPT-31558, *Surface Geophysical Exploration of the C Tank Farm at the Hanford Site*, Rev. 1, prepared by CH2M HILL Hanford Group, Inc., for U.S. Department of Energy Office of River Protection, Richland, Washington.

Statement of Work Requisition 151227, 2007, Drilling and Characterization Services, Subcontract 31672-0, Task 2-Description, March 16, prepared by CH2M HILL Hanford Group, Inc., for Energy*Solutions* Technical Services, Richland, Washington.

Statement of Work Requisition 159611, 2007, Drilling and Characterization Services, Subcontract 31672-2, Task 2-Description, August 20, prepared by CH2M HILL Hanford Group, Inc., for Energy*Solutions* Technical Services, Richland, Washington.

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

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# APPENDIX C

# GLOBAL POSITIONING SYSTEM COORDINATES AND MAPPING

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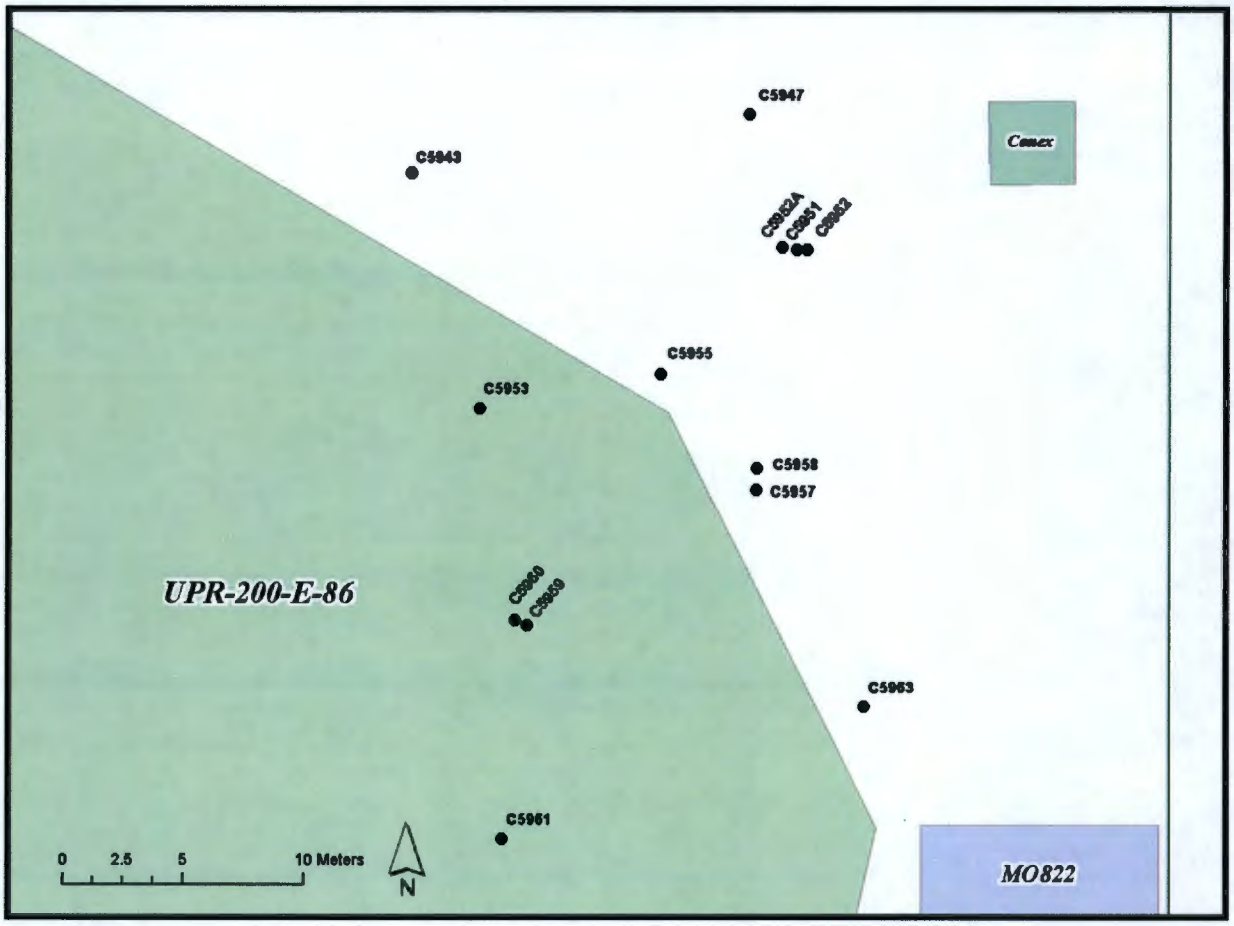
| Name | Northing | Easting | Elevation |
|---|---|---|---|
| C5943 | 136476.6 | 575044.1 | 205.404 |
| C5953 | 136466.8 | 575046.9 | 205.6 |
| C5955 | 136468.3 | 575054.4 | 205.421 |
| C5958 | 136464.4 | 575058.4 | 205.504 |
| C5957 | 136463.5 | 575058.4 | 205.659 |
| C5963 | 136454.4 | 575062.9 | 205.652 |
| C5947 | 136479 | 575058.1 | 204.996 |
| C5959 | 136457.8 | 575048.9 | 205.848 |
| C5960 | 136458 | 575048.4 | 205.727 |
| C5951 | 136473.4 | 575060.1 | 205.126 |
| C5952 | 136473.4 | 575060.5 | 205.129 |
| C5952A | 136473.5 | 575059.5 | 205.148 |
| C5961 | 136448.9 | 575047.8 | 206.745 |



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# APPENDIX D

# DRILLING AND SAMPLING DAILY WORK RECORDS

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ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER: 90** | **DATE:** 03/27/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER C31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT HHU CLEANING** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 0 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 56 f; partly sunny

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, I. Villarell (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | No Work Package picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Chain Binders. An equipment and site inspection was conducted. No deficiencies noted |
| ——— | 12:00 | Conduct hand wiping the HHU and back-hoe to meet the alpha survey requirements. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Hand wiping the HHU and back-hoe to meet the alpha survey requirements. |
| ——— | ——— | NOTE 1: Personnel will be in a Washington Groundwater training class tomorrow supporting drillers licenses. |
| 15:00 | 15:30 | Secure site and Equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [illegible]

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 1 | **DATE:** 09-24/25/26/27/28-07 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119 | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT MOBILIZATION AND CLEAN-UP** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE:** -0 ft-

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A |

**BORING DEPTH** *(include sampling depth)*: N/A

**START TIME:** 06:00
**END TIME:** 15:30/14:30 Friday
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 68 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 0.0 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 0.0 ft |
| Total drive string length | = 0.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG),J. Clayton, P. Templeton (RCT); M. Repko (ENG. SOLUTIONS).

| *TIME* FROM | TO | |
|---|---|---|
| 09-24-2007 | | Safety Topic: Pinch Points. Loaded and hauled equipment and materials to Energy NW. Off loaded and organized. The pressure washer was winterized and fuel drained. Arrange tools and equipment in horse trailer. Electricians changed outside light on lunch trailer! |
| 09-25-2007 | | Safety Topic: Hand Protection – wear gloves. Mr. Repko and Kelly have physicals in AM. Initiate installation of rebuilt hydraulic cylinder. Mr. Dorsey re-surveys two bore-hole locations for access issues. Mount signage on HHU. Attend Walk-down meeting at SMURF (C Tank Farm). |
| 09-26-2007 | | Safety Topic: Site Organization. Complete hydraulic cylinder and chain installation. Completed mounting signage on HHU. Meet with Orrco Company and oil was drained from drums. Picked up pallets and drums and hauled to C Tank farm. |
| 09-27-2007 | | Safety Topic: Mice and Illness. Cleaned HHU and set-up on C5943. Completed attachment of hose carrier. Pictures were taken of HHU. Transport materials from horse trailer to chemical storage unit. Conduct inventory at SMURF equipment yard. |
| 09-28-2007 | | Safety Topic: Power tool operation. ***A weekly safety topic was moving equipment. Moving equipment could be supporting several tasks (driving mobile equipment or moving items by hand). When moving mobile equipment use a spotter. When moving items by hand get help if the load is too heavy or awkward. Always use the appropriate PPE.*** Transport equipment from horse trailer to Green hut. Continue clean-up and arranging shelving and materials. |

***REPORT BY***: DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE:

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 2 | **DATE:** 10/01-02-03-04-07 |
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119 | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 | |
| **PURPOSE: CONDUCT MOBILIZATION AND CLEAN-UP** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E | |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE:** -0 ft-

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A |

**BORING DEPTH** *(include sampling depth)*: N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 71 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 0.0 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 0.0 ft |
| Total drive string length | = 0.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG),J. Clayton, P. Templeton (RCT); M. Repko (ENG. SOLUTIONS).

| *TIME* FROM | TO | |
|---|---|---|
| 10-01-2007 | | Safety Topic: Electrical lines. Store and arrange hand tools in horse trailer. Sorted out cement bags at Chemical storage. Discarded bad cement bags. Moved oil drums, pumps and buckets to Chemical storage unit. |
| 10-02-2007 | | Safety Topic: Wind and eye protection. CHG Safety meeting. ***A weekly safety meeting discussed soil classification (Appendix A, 1926 Subpart P). Type A: Cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144 KPa) or greater. Examples of cohesive soils are clay, silty clay, sandy clay, clay loam, and in some cases, silty clay loam and sandy clay loam. Type B: Cohesive soil with an unconfined compressive strength greater than 0.5 ton per square foot (tsf) (48 KPa) but less than 1.5 tsf (144 KPa. Granular cohesionless soils including angular gravel (similar to crushed rock), silt, silt loam, sandy loam and in some cases, silty clay loam and sandy clay loam. Type C: Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 KPa) or less. Examples are granular soils including gravel, sand, and loamy sand. Hanford soil is class C and may require a slope of 2.1 (maximum allowable slope). Unconfined Compressive strength is the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.*** Hauled pipe stands and 10 inch casing to CHG yard. Ready drive points. Grind down sharp edges on probe holder for Dual Wall sampling System. Personnel go to Hammer to complete Mask Fit. However, this cannot be completed until respiratory training is renewed. |
| 10-03-2007 | | Safety Topic: Lead exposure. Checked CHG's trailers for DOT inspections. The oil, air filter and wipers were changed in the support pick-up. Picked up and transported the Grout Plant and trailer to the CHG yard. Moving parts to Green hut. Charge 4 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-04-2007 | | Safety Topic: Mice and Illness: Worked on transferring equipment in connex boxes at Energy NW. Transport hydraulic cylinder to J and L Hydraulics in Pasco. Charge 5 hrs to CH2M Hill. Supported another project and used their Charge Code. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: KD Reynolds

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 3 | **DATE:** 10/08-09-10-11-12-07 |
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119 | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 | |
| **PURPOSE: CONDUCT MOBILIZATION AND CLEAN-UP** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E | |
| **REFERENCE MEASURING POINT:** Ground Level | | **T OTAL SHIFT FOOTAGE:** -0 ft- | |

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A |

**BORING DEPTH** *(include sampling depth)*: N/A

**START TIME:** 06:00
**END TIME:** 15:30/14:30 Friday
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME***: N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 74 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 0.0 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 0.0 ft |
| Total drive string length | = 0.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG),J. Clayton, P. Templeton (RCT); M. Repko (ENG. SOLUTIONS).

| TIME FROM | TIME TO | |
|---|---|---|
| 10-08-2007 | | Safety Topic: Forklift Safety. Transported equipment trailer from PNNL yard to CH2M Hill lay-down yard. Checked on grounding rods at C Tank Farm. Charge 4 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-09-2007 | | Safety Topic: Securing loads. ***Weekly Safety topic is Chocking pipe. Fluor's subcontractor's have had several accidents recently regarding casing rolling or falling off a truck due to casing that was not chocked. Along with chocking pipe, tubing should either be banded or strapped when moving. Personnel shall avoid being next to tubing in case tubing falls. Evaluate each load for securement.*** Worked on transporting pipe to CH2M Hill's lay-down yard. Cleaning casing. Charge 2 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-10-2007 | | Safety Topic: Welding, flash and spark protection. Picked up casing (two loads) and tools for diesel hammer rig and transported to CH2M Hill lay-down yard. Charge 2 hrs (Kelly) and 1 hr (Repko) to CH2M Hill. Supported another project and used their Charge Code. |
| 10-11-2007 | | Safety Topic: Foot injuries. Hauled equipment to Energy NW yard. An access video was viewed to update badge. Moved equipment to C Tank Farm. Charge 3 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-12-2007 | | No Work |

***REPORT BY***: DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 4 | **DATE:** 10/15-16-17-18-07 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119 | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT MOBILIZATION AND CLEAN-UP** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -0 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A |

**BORING DEPTH** *(include sampling depth)*: N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 74 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 0.0 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 0.0 ft |
| Total drive string length | = 0.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG),J. Clayton, P. Templeton (RCT); M. Repko (ENG. SOLUTIONS).

| *TIME* FROM | TO | |
|---|---|---|
| 10-15-2007 | | Safety Topic: Biological Hazards. Mr. Passey has a Mask fit @ Hammer. Move HHU and support equipment to allow more room during moving of support trailers at C Tank Farm. Pulled door off back-hoe to repair window latch. Charge 4 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-16-2007 | | Safety Topic: Traffic Safety. Picked up hydraulic oil at green Hut. Checked with electricians on moving trailers. Extension cords are ok and do not need quarterly inspection tape. The support trailers were moved and set-up. Charge 2 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-17-2007 | | Safety Topic: Driving and Black Ice. Interface with carpenters on setting up support trailers. Made arrangements with 200E shop for the trailer (equipment) DOT inspections. Charge 0 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-18-2007 | | Safety Topic: Forklift loading and unloading. ***A weekly safety meeting was discussed regarding Borehole abandonment. The regulations for borehole abandonment are governed by Washington State Department of Ecology (WDOE), Washington Administrative Code (WAC) 173-160 Well Construction Standards. During abandonment operations material and equipment handling can be very labor intensive. Use appropriate lifting techniques and appropriate PPE.*** Re-install door on CAT back-hoe. Charge 0 hrs to CH2M Hill. Supported another project and used their Charge Code. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: |

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 5 | **DATE:** 10/22-23-24-25-26/07 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT MOBILIZATION AND CLEAN-UP** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -0 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A |

**BORING DEPTH** *(include sampling depth)*: N/A

**START TIME:** 06:00
**END TIME:** 15:30/14:30 Friday
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 66 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 0.0 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 0.0 ft |
| Total drive string length | = 0.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Passey (ENG. SOLUTIONS).

| TIME FROM | TIME TO | |
|---|---|---|
| 10-22-2007 | | Safety Topic: Pinch Points. Winterized and loaded pressure washer at PNNL yard. Transport to Energy NW yard. Charge 0 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-23-2007 | | Safety Topic: Influence. Pick-up trailer and casing, haul to CH2M Hill yard. Unload casing. Charge 0 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-24-2007 | | Safety Topic: Electrical Hazards. Hauled pallets to United Pipe in Pasco. Clean-up de-con pad and throw away plastic and felt from PNNL yard. Charge 0 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-25-2007 | | Safety Topic: Deer Crossing the roads. Check on Mr. Passey's dosimeter – not available yet. C Tank Farm Pre-job Safety meeting (08:00 – 09:30). Cannot start work due to package is not signed off and NEC inspection is needed. Charge 3 hrs to CH2M Hill. Supported another project and used their Charge Code. |
| 10-26-2007 | | Safety Topic: Communication. ***A weekly safety meeting was conducted as follows: Safety Training and Education. OSHA Standards for the Construction Industry, Subpart C – General Safety and Health Provisions. The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury. General duty Clause. Employees required to handle or use poisons, caustics, and other harmful substances shall be instructed regarding the safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required.*** Picked up Mr. Passey's dosimeter and attended the whole body count. The HHU was set-up on C5947 (site 3). Staked boreholes at the C Tank farm location. Moved drill rod to work location. Awaiting for the NEC inspection for work to initiate. |

| | |
|---|---|
| ***REPORT BY***: DE Skoglie<br>TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY***: KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: |

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 6 | **DATE:** 10/29-30-31/07 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT MOBILIZATION AND CLEAN-UP** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE:** -0 ft-

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A |

**BORING DEPTH** *(include sampling depth)*: N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 62 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 0.0 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 0.0 ft |
| Total drive string length | = 0.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Passey (ENG. SOLUTIONS).

| TIME FROM | TIME TO | |
|---|---|---|
| 10-29-2007 | | Safety Topic: Frost/Ice on Roadways and walking areas. ***The weekly safety topic is de-contamination facilities. De-con facilities use a containment catch basin to contain fluids. This fluid is either evaporated off or barreled depending on weather or not the fluid is contaminated. Proper PPE is required regardless if the fluid is contaminated or not. Follow the appropriate Activity Hazard Analysis Safety document.*** The crew will conduct a walk-down of the de-con facility located to the SE of our location. An NEC (electrical) inspection has not been completed. Arranging (CH2M Hill) for inspection. However, it has been challenging for CH2M Hill to conduct the inspection. Gathered signs, rope and stanchions and roped off the work zone as Authorized Only. Blocked and leveled the generator. Hauled pallets and miscellaneous to chemical storage. Picked up Mr. Passey's Energy NW badge. |
| 10-30-2007 | | Safety Topic: Watching out for children on Halloween. Worked on getting Mr. Passey into ACE system. Clean up support trailers at C Tank Farm. Gathered maintenance items. No NEC inspection. |
| 10-31-2007 | | Safety Topic: Safety Shoes. Conduct HHU maintenance. Standing by for electrician. 14:00 hrs Electrician shows and changes ground on generator. Conducts preliminary start up and flips breakers. Also, inspects extension cords fabricated by shop (support air monitors). |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE:

**ENERGYSOLUTIONS** — **ENERGY SOLUTIONS, WESTERN OPERATIONS**

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

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5947/C5951 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 7 | **DATE:** November 01, 2007 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING @ C5947 AND SET-UP ON C5951** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level — **T OTAL SHIFT FOOTAGE: -103 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*: C5947 0 to 103 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 64 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 103.3 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 1.7 ft |
| Total drive string length | = 105 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Passey, D. Skoglie (ENG. SOLUTIONS).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. Discussed RBA process and drive depth and swabbing. Swabbing will be conducted at TD, but not to bottom to help eliminate pulling contaminated soil up tubing. Safety Topic: Fire-place fires. |
| 09:00 | 09:10 | Conduct site and equipment inspection. No deficiencies noted. |
| 09:10 | 09:22 | C5947: Drive to a depth of 3.8 ft bgs. Add a drive rod (4 ft). Drive to a depth of 7.8 ft bgs. Add a drive rod |
| 09:22 | 09:36 | Drive to a depth of 11.8 ft bgs. Add a drive rod. Drive to a depth of 15.8 ft bgs. Add a drive rod. |
| 09:36 | 09:48 | Drive to a depth of 19.6 ft bgs. Add a drive rod. Drive to a depth of 23.7 ft bgs. Add a drive rod. |
| 09:48 | 10:02 | Drive to a depth of 27.7 ft bgs. Add a drive rod. Drive to a depth of 31.8 ft bgs. Add a drive rod. |
| 10:02 | 10:18 | Drive to a depth of 35.7 ft bgs. Add a drive rod. Drive to a depth of 39.7 ft bgs. Add a drive rod. |
| 10:18 | 10:30 | Drive to a depth of 43.8 ft bgs. Add a drive rod. Drive to a depth of 47.7 ft bgs. Add a drive rod. |
| 10:30 | 11:30 | AOP-008 is in affect (wind is over 20 mph sustained). Work stops. Set-up drive tips with silicone. |
| 11:30 | 12:00 | Lunch (AOP-008 is still in affect). |
| 12:00 | 12:10 | The wind has calmed down. Start driving. Drive to a depth of 51.8 ft bgs. Add a drive rod. |
| 12:10 | 12:25 | Drive to a depth of 55.7 ft bgs. Add a drive rod. Drive to a depth of 59.8 ft bgs. Add a drive rod |
| 12:25 | 12:50 | Drive to a depth of 63.7 ft bgs. Add a drive rod. Drive to a depth of 67.7 ft bgs. Add a drive rod. |
| 12:50 | 13:20 | Allow the HHU head to cool. |

***REPORT BY***: DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 6-5-08
SIGNATURE:

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

| Date | Well No. | Continuation of Report No. |
|---|---|---|
| 11-01-07 | C5963/C5961 | 7 |

| DESCRIPTION OF OPERATIONS/REMARKS | |
|---|---|
| 13:20 – 13:33 | Drive to a depth of 71.7 ft bgs. Add a drive rod. Drive to a depth of 75.7 ft bgs. Add a drive rod. |
| 13:33 – 13:48 | Drive to a depth of 79.7 ft bgs. Add a drive rod. Drive to a depth of 83.7 ft bgs. Add a drive rod. |
| 13:48 – 14:02 | Drive to a depth of 87.7 ft bgs. Add a drive rod. Drive to a depth of 91.7 ft bgs. Add a drive rod. |
| 14:02 – 14:15 | Drive to a depth of 95.7 ft bgs. Add a drive rod. Drive to a depth of 99.7 ft bgs. Add a drive rod (2 ft). |
| 14:15 – 14:30 | Drive to a depth of 103 ft bgs. Tag and swab tubing (clean) at 101 ft bgs. |
| 14:30 – 15:00 | Move HHU and support equipment to C5951. |
| 15:00 – 15:30 | Secure site and equipment. |
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|---|---|---|---|---|---|
| Report By | David E. Skoglie | Reviewed By | K. D. Reynolds | | |
| Title | ES TECHNICAL/SAFETY REP | Title | ES FIELD PROJECT MANAGER | Date | 5-5-08 |
| Signature | David E. Skoglie | Signature | [signature] | | |

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2 (Monday)

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5951/C5943 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 8 | **DATE:** November 05, 2007 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING @ C5951 AND C5943** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -136 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*:

C5951 0 to 104 ft bgs
C5943 0 to 32 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 62 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 32.3 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 1.7 ft |
| Total drive string length | = 34 ft |

**SAMPLE/OTHER SUMMARY**

N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Repko, D. Skoglie (ENG. SOLUTIONS).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:50 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. Conduct site and equipment inspection. No deficiencies noted. |
| 08:50 | 09:00 | Drive to a depth of 3.8 ft bgs. Add a drive rod (4 ft). Drive to a depth of 7.8 ft bgs. Add a drive rod |
| 09:00 | 09:12 | Drive to a depth of 11.8 ft bgs. Add a drive rod. Drive to a depth of 15.8 ft bgs. Add a drive rod. |
| 09:12 | 09:24 | Drive to a depth of 19.6 ft bgs. Add a drive rod. Drive to a depth of 23.7 ft bgs. Add a drive rod. |
| 09:24 | 09:35 | Drive to a depth of 27.7 ft bgs. Add a drive rod. Drive to a depth of 31.8 ft bgs. Add a drive rod. |
| 09:35 | 09:48 | Drive to a depth of 35.7 ft bgs. Add a drive rod. Drive to a depth of 39.7 ft bgs. Add a drive rod. |
| 09:48 | 10:00 | Drive to a depth of 43.8 ft bgs. Add a drive rod. Drive to a depth of 47.7 ft bgs. Add a drive rod. |
| 10:00 | 10:30 | The HHU is shut down to allow the head to cool. The geologist trailer was leveled and steps repositioned. |
| 10:30 | 10:38 | Drive to a depth of 51.8 ft bgs. Add a drive rod. Drive to a depth of 55.7 ft bgs. Add a drive rod. |
| 10:38 | 10:49 | Drive to a depth of 59.7 ft bgs. Add a drive rod. Drive to a depth of 63.7 ft bgs. Add a drive rod. |
| 10:49 | 11:00 | Drive to a depth of 67.7 ft bgs. Add a drive rod. Drive to a depth of 71.7 ft bgs. Add a drive rod. |
| 11:00 | 11:30 | Lunch |
| 11:30 | 11:47 | Drive to a depth of 75.7 ft bgs. Add a drive rod. Drive to a depth of 79.8 ft bgs. Add a drive rod |
| 11:47 | 12:16 | Drive to a depth of 83.7 ft bgs. Add a drive rod. Drive to a depth of 87.7 ft bgs. Add a drive rod. |
| 12:16 | 12:40 | Drive to a depth of 91.7 ft bgs. Add a drive rod. Drive to a depth of 95.7 ft bgs. Add a drive rod. |
| 12:40 | 13:10 | Allow the HHU head to cool. |

***REPORT BY:*** DE Skoglie
SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie
TITLE : ES

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

| Date | Well No. | Continuation of Report No. |
|---|---|---|
| 11-05-07 | C5951/C5943 | 8 |

| | DESCRIPTION OF OPERATIONS/REMARKS |
|---|---|
| 13:10 – 13:25 | Drive to a depth of 99.7 ft bgs. Add a drive rod. Drive to a depth of 104 ft bgs. Tag and swab tubing (clean) at 102 ft bgs. |
| 13:25 – 13:42 | Move HHU and support equipment and set-up on C5943. |
| 13:42 – 14:01 | Drive to a depth of 3.8 ft bgs. Add a drive rod. Drive to a depth of 7.8 ft bgs. Add a drive rod. |
| 14:01 – 14:20 | Drive to a depth of 11.8 ft bgs. Add a drive rod. Drive to a depth of 15.7 ft bgs. Add a drive rod. |
| 14:20 – 14:40 | Drive to a depth of 19.7 ft bgs. Add a drive rod. Drive to a depth of 23.7 ft bgs. Add a drive rod. |
| 14:40 – 15:00 | Drive to a depth of 27.7 ft bgs. Add a drive rod. Drive to a depth of 31.8 ft bgs. Add a drive rod. |
| 15:00 – 15:30 | Secure site and equipment. |
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|---|---|---|---|---|---|
| Reported By | David E. Skoglie | Reviewed By | K. D. Reynolds | | |
| Title | ES TECHNICAL/SAFETY REP | Title | ES FIELD PROJECT MANAGER | Date | 5-5-08 |
| Signature | David E. Skoglie | Signature | [illegible] | | |

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2 (Tuesday)

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5943/C5963 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 9 | **DATE:** November 06, 2007 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING @ C5943 AND C5963** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -100 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*:

C5943 32 to 104 ft bgs
C5963 0 to 28 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 58 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 32.3 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 1.7 ft |
| Total drive string length | = 34 ft |

**SAMPLE/OTHER SUMMARY**

The carpenter's arrive to initiate work on the Geologist roof leak (however they cannot find the keys to the high lift).

**OPERATOR:** K. Olson

License no. 1217

S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Repko, D. Skoglie (ENG. SOLUTIONS).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 09:39 | CH2M Hill has a VPP Safety award breakfast. Employees will support our project when completed. Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is uneven ground. Conduct site and equipment inspection. No deficiencies noted. |
| 09:39 | 09:58 | C5943: Drive from 31.8 ft to a depth of 35.7 ft bgs. Add a drive rod (4 ft). Drive to a depth of 39.7 ft bgs. Add a drive rod |
| 09:58 | 10:14 | Drive to a depth of 43.8 ft bgs. Add a drive rod. Drive to a depth of 47.8 ft bgs. Add a drive rod. |
| 10:14 | 10:28 | Drive to a depth of 51.7 ft bgs. Add a drive rod. Drive to a depth of 55.7 ft bgs. Add a drive rod. |
| 10:28 | 10:46 | Drive to a depth of 59.8 ft bgs. Add a drive rod. Drive to a depth of 63.7 ft bgs. Add a drive rod. |
| 10:46 | 11:05 | Drive to a depth of 67.7 ft bgs. Add a drive rod. Drive to a depth of 71.7 ft bgs. Add a drive rod. |
| 11:05 | 12:00 | The HHU is shut down to allow the head to cool. Lunch 11:15 – 11:45 Evaluate o-rings for the hydraulic motor. |
| 12:00 | 12:15 | Drive to a depth of 75.7 ft bgs. Add a drive rod. Drive to a depth of 79.7 ft bgs. Add a drive rod. |
| 12:15 | 12:34 | Drive to a depth of 83.8 ft bgs. Add a drive rod. Drive to a depth of 87.7 ft bgs. Add a drive rod. |
| 12:34 | 12:50 | Drive to a depth of 91.7 ft bgs. Add a drive rod. Drive to a depth of 95.8 ft bgs. Add a drive rod. |
| 12:50 | 13:21 | The HHU is shut down to allow the head to cool. |
| 13:21 | 13:35 | Drive to a depth of 99.7 ft bgs. Add a drive rod. Drive to a depth of 104 ft bgs. Tag and swab tubing (clean) at 102 ft bgs. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE:

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

| Date | Well No. | Continuation of Report No. |
|---|---|---|
| 11-06-07 | C5943/C5963 | 9 |

| DESCRIPTION OF OPERATIONS/REMARKS | |
|---|---|
| 13:35 – 13:50 | Move HHU and support equipment and set-up on C5963. |
| 13:50 – 14:02 | Drive to a depth of 3.8 ft bgs. Add a drive rod. Drive to a depth of 7.8 ft bgs. Add a drive rod. |
| 14:02 – 14:18 | Drive to a depth of 11.8 ft bgs. Add a drive rod. Drive to a depth of 15.7 ft bgs. Add a drive rod. |
| 14:18 – 14:40 | Drive to a depth of 19.7 ft bgs. Add a drive rod. Drive to a depth of 23.7 ft bgs. Add a drive rod. |
| 14:40 – 15:00 | Drive to a depth of 27.7 ft bgs. Add a drive rod. |
| 15:00 – 15:30 | Secure site and equipment. |
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|---|---|---|---|---|---|
| Report By | David E. Skoglie | Reviewed By | K. D. Reynolds | | |
| Title | ES TECHNICAL/SAFETY REP | Title | ES FIELD PROJECT MANAGER | Date | 55-06 |
| Signature | David E. Skoglie | Signature | [signature] | | |

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5963/C5961 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 10 | **DATE:** November 07, 2007 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING @ C5963 AND C5961** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -160 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*:

C5963 28 to 104 ft bgs
C5961 0 to 84 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 62 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 0.0 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 84 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 1.0 ft |
| Total drive string length | = 85 ft |

**SAMPLE/OTHER SUMMARY**

N/A

**OPERATOR**: K. Olson

License no. 1217

S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Repko, D. Skoglie (ENG. SOLUTIONS).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is Perception. Conduct site and equipment inspection. No deficiencies noted. |
| 09:00 | 09:10 | Drive C5963 from 27.7 ft to a depth of 31.7 ft bgs. Add a drive rod (4 ft). |
| 09:10 | 09:21 | Drive to a depth of 35.7 ft bgs. Add a drive rod. Drive to a depth of 39.7 ft bgs. Add a drive rod |
| 09:21 | 09:32 | Drive to a depth of 43.8 ft bgs. Add a drive rod. Drive to a depth of 47.8 ft bgs. Add a drive rod. |
| 09:32 | 09:44 | Drive to a depth of 51.7 ft bgs. Add a drive rod. Drive to a depth of 55.7 ft bgs. Add a drive rod. |
| 09:56 | 10:08 | Drive to a depth of 59.8 ft bgs. Add a drive rod. Drive to a depth of 63.7 ft bgs. Add a drive rod. |
| 10:08 | 10:20 | Drive to a depth of 67.7 ft bgs. Add a drive rod. Drive to a depth of 71.7 ft bgs. Add a drive rod. |
| 10:20 | 10:31 | Drive to a depth of 75.7 ft bgs. Add a drive rod. Drive to a depth of 79.7 ft bgs. Add a drive rod. |
| 10:31 | 10:43 | Drive to a depth of 83.8 ft bgs. Add a drive rod. Drive to a depth of 87.7 ft bgs. Add a drive rod. |
| 10:43 | 10:55 | Drive to a depth of 91.7 ft bgs. Add a drive rod. Drive to a depth of 95.8 ft bgs. Add a drive rod. |
| 10:55 | 11:08 | Drive to a depth of 99.7 ft bgs. Add a drive rod. Drive to a depth of 104 ft bgs. Tag and swab tubing (clean) at 102 ft bgs. |
| 11:08 | 11:27 | Move HHU and support equipment to C5961. Set-up equipment. |
| 11:27 | 11:36 | Drive to a depth of 3.8 ft bgs. Add a drive rod. Drive to a depth of 7.8 ft bgs. Add a drive rod. |
| 11:36 | 12:06 | The HHU is shut down to allow the head to cool. Lunch 11:36 – 12:06 |
| 12:06 | 12:17 | Drive to a depth of 11.8 ft bgs. Add a drive rod. Drive to a depth of 15.7 ft bgs. Add a drive rod. |
| 12:17 | 12:29 | Drive to a depth of 19.7 ft bgs. Add a drive rod. Drive to a depth of 23.7 ft bgs. Add a drive rod. |
| 12:29 | 12:43 | Drive to a depth of 27.7 ft bgs. Add a drive rod. Drive to a depth of 31.7 ft bgs. Add a drive rod. |
| 12:43 | 12:55 | Drive to a depth of 35.7 ft bgs. Add a drive rod. Drive to a depth of 39.7 ft bgs. Add a drive rod. |

***REPORT BY***: DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1
(Thursday)

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5961/C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 11 | **DATE:** November 08, 2007 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING @ C5961 AND SET-UP ON C5947; CONDUCT GAMMA LOGGING** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -20 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*:

C5961 83.8 to 104 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5

**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 64 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 83.8 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 104 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 2.0 ft |
| Total drive string length | = 106 ft |

**SAMPLE/OTHER SUMMARY**

**OPERATOR**: K. Olson
License no. 1217
S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Repko, D. Skoglie (ENG. SOLUTIONS), B. Randall (Geophysics NW).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 09:10 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE and gather equipment. Conducted Plan-of-the-Day meeting. The Safety topic is Energy Drinks. ***A weekly Safety topic was conducted as follows: Unusual odors – periodically an unusual odor will be detected. Immediately exit the work zone (upwind) and contact IH. The IH will evaluate the site for real time hazards. The field crew can go back to work once the site is released by IH/Operations. Personnel may be taken to Advanced Med for further evaluation if intake was noted.*** Conduct site and equipment inspection. No deficiencies noted. |
| 09:10 | 09:37 | Drive C5961 from 83.8 ft to a depth of 87.7 ft bgs. Add a drive rod (4 ft). |
| 09:37 | 10:02 | Drive to a depth of 91.7 ft bgs. Add a drive rod. Drive to a depth of 95.8 ft bgs. Add a drive rod |
| 10:02 | 10:30 | Drive to a depth of 99.7 ft bgs. Add a drive rod. Drive to a depth of 104 ft bgs. |
| 10:30 | 11:30 | Set-up drive points with silicone. |
| -------- | ---------- | Mr. Randal is Gamma logging C5947 100.3 to 1 ft and repeat 26.5 to 17 ft bgs. Completes at 12:00 |
| 11:30 | 12:00 | Lunch |
| -------- | ---------- | Mr. Randal is Gamma Logging C5943 100.5 to 1 ft and repeat 26.5 to 16.5 ft bgs. |
| 12:00 | 12:40 | Move HHU/support equipment and set-up on C5947. This boring will be deepened. Currently it is 104.0 ft bgs. |
| 12:40 | 15:00 | Conduct maintenance on HHU. The accumulator's are tested. The low pressure accumulator is blown. The accumulator is replaced and re-pressurized. |
| -------- | ---------- | Mr. Randall completes Gamma Logging at C5943. |
| | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: |

ENERGYSOLUTIONS

DRILLING AND SAMPLING (PERCUSSION)
DAILY WORK RECORD

Page 2 of 2

| Date | Well No. | Continuation of Report No. |
|---|---|---|
| 11-08-07 | C5963/C5961 | 10 |

| | DESCRIPTION OF OPERATIONS/REMARKS |
|---|---|
| 12:55 – 13:12 | Drive to a depth of 43.8 ft bgs. Add a drive rod. Drive to a depth of 47.8 ft bgs. Add a drive rod. |
| 13:12 – 13:24 | Drive to a depth of 51.7 ft bgs. Add a drive rod. Drive to a depth of 55.7 ft bgs. Add a drive rod. |
| 13:24 – 13:37 | Drive to a depth of 59.8 ft bgs. Add a drive rod. Drive to a depth of 63.7 ft bgs. Add a drive rod. |
| 13:37 – 13:56 | Allow the HHU hydraulic head to cool. |
| 13:56 – 14:10 | Drive to a depth of 67.7 ft bgs. Add a drive rod. Drive to a depth of 71.7 ft bgs. Add a drive rod. |
| 14:10 – 14:22 | Drive to a depth of 75.7 ft bgs. Add a drive rod. Drive to a depth of 79.7 ft bgs. Add a drive rod. |
| 14:22 – 14:30 | Drive to a depth of 83.8 ft bgs. Add a drive rod. |
| 14:30 – 15:00 | Secure site and equipment. |
| 15:00 – 15:30 | Discuss anticipated operations. |

| | | | | | |
|---|---|---|---|---|---|
| Report By | David E. Skoglie | Reviewed By | K. D. Reynolds | | |
| Title | ES TECHNICAL/SAFETY REP | Title | ES FIELD PROJECT MANAGER | Date | 5-5-08 |
| Signature | David E. Skoglie | Signature | Kent Reynolds | | |

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1 (Friday)

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5947/C5963 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 12 | **DATE:** November 09, 2007 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING @ C5947; CONDUCT GAMMA LOGGING** | **REFERENCE:** FSWO-DOW-024<br>**RWP**: CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -39.8 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*:

C5947 102 to 141.8 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR** TIME: 0.5

**TOTAL TIME:** 8.0 Hrs

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 61 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 102 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 142 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 2.0 ft |
| Total drive string length | = 144 ft |

**SAMPLE/OTHER SUMMARY**

N/A

**OPERATOR**: K. Olson

License no. 1217

S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Repko, D. Skoglie (ENG. SOLUTIONS), B. Randall (Geophysics NW).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is EYE PROTECTION. Conduct site and equipment inspection. No deficiencies noted. |
| 08:30 | 08:43 | Drive C5947 from 102 ft to a depth of 105.7 ft bgs. Add a drive rod (4 ft). |
| 08:43 | 09:07 | Drive to a depth of 109.8 ft bgs. Add a drive rod. Drive to a depth of 113.7 ft bgs. Add a drive rod |
| 09:07 | 09:19 | Drive to a depth of 117.7 ft bgs. Add a drive rod. Drive to a depth of 121.8 ft bgs. |
| 09:19 | 09:48 | Drive to a depth of 125.7 ft bgs. Add a drive rod. Drive to a depth of 129.7 ft bgs. |
| 09:48 | 10:15 | Drive to a depth of 133.7 ft bgs. Add a drive rod. Drive to a depth of 137.7 ft bgs. |
| 10:15 | 10:30 | Drive to a depth of 141.8 ft bgs. Add a drive rod. |
| 10:10 | 11:00 | Secure site and equipment. |
| ——— | ——— | Mr. Randall has Gamma logging @ C5963 (100 TO 35 FT BGS) repeat 53 to 44.5 ft bgs. |
| 11:00 | 13:30 | Lunch at 2750 (CH2M Hill Veterans Day Lunch). |
| 13:30 | 14:30 | Discuss daily operations. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# ENERGY SOLUTIONS, WESTERN OPERATIONS

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1 (Monday)

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 13 | **DATE:** November 12, 2007 |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** Requisition #141791<br>**SUBCONTRACT NUMBER:** 31672 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN 3277 (U-DIG # 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU) CAT<br>**AHA:** AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WIND (DRIVING); CONDUCT GAMMA LOGGING** | **REFERENCE:** FSWO-DOW-024<br>**RWP:** CO-362, Rev 5 | **LOCATION:** C Tank Farm SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**T OTAL SHIFT FOOTAGE: -0 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*:

C5947 141.8 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9.0 Hrs

***DOCUMENTED DOWNTIME:***

AOP-008 (wind) – Driving – 9 hrs

**WEATHER CONDITIONS** (373-2716)

Temperature 62 F

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 ½ OD casing (start of shift w/bk pull) | = 141.8 ft |
| Bottom of 2 ½ OD casing (end of shift w/bk pull) | = 141.8 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 2.2 ft |
| Total drive string length | = 144 ft |

**SAMPLE/OTHER SUMMARY**

**OPERATOR:** K. Olson

License no. 1217

S. Snook, J. Villareal, (OP/CHG), J. Clayton, P. Templeton (RCT); M. Repko, D. Skoglie (ENG. SOLUTIONS), B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is Hunting Safety. Conduct site and equipment inspection. No deficiencies noted. |
| 08:30 | ---------- | Down due to wind in excess of 20 mph (sustained) AOP-008. |
| ---------- | ---------- | Since we are Gamma logging the top 35 ft, we will be able to log the clean section. |
| ---------- | ---------- | Mr. Randall completes Gamma logging C5963 (41 to 1 ft bgs). |
| ---------- | 11:00 | Secure site and equipment. |
| 11:00 | ---------- | Field crew provides a number of split spoons for Mr. Syndor. |
| ---------- | ---------- | Standby for winds. |
| ---------- | 15:30 | The site is evacuated @ 14:30 hrs (winds are 60 mph). |
| | | |
| | | |
| | | |
| | | |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Ken Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 14 | **DATE:** 11-13-07 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DRIVING (C5947) AND MOISTURE LOGGING @ C5943** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -32- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*:

C5947 142 to 174 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 58 F; partly cloudy. Wind gusts to 20 mph.

**CASING SUMMARY**

| | |
|---|---|
| Bottom of 2 1/2 OD casing (start of shift w/bk pull) | = 142 ft |
| Bottom of 2 1/2 OD casing (end of shift w/bk pull) | = 174 ft |
| Casing (2 1/2 in OD) stick up (end of shift) | = 2.0 ft |
| Total Drive String Length | = 176 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson

License no. 1217

S. Snook, Izzy (OP/CHG), P. Templeton, J. Clayton (HPT/CHG), M. Passey, D. Skoglie (ENG. SOLUTIONS), B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:45 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is appropriate use of hand-tools. Conduct site and equipment inspection. No deficiencies. |
| 08:45 | ---------- | Carpenters arrive and secure cabinet in SW Change Trailer. |
| ---------- | ---------- | Mr. Randall initiates Moisture logging at C5943. |
| ---------- | 09:10 | Conduct driving at C5947. Drive from 141.8 to 145.8 ft bgs. Add a drive rod. |
| 09:10 | 09:5 | Drive to 149.7 ft bgs. Add a drive rod. |
| 09:50 | 10:15 | Allow the head to cool to operating temperatures. Head reads 150 F. |
| 10:15 | 10:32 | Drive to 153.7 ft bgs. Add a drive rod. Drive to 157.7 ft bgs. Add a drive rod. |
| 10:32 | 11:15 | Allow the head to cool to operating temperatures. Head reads 145 F. Eat lunch while waiting. |
| 11:15 | 11:45 | Drive to 161.8 ft bgs. Add a drive rod. |
| 11:45 | 12:35 | Allow the head to cool to operating temperatures. Head reads 150 F. |
| 12:35 | 13:35 | Drive to 165.7 ft bgs. Add a drive rod. Drive to 169.7 ft bgs. Add a drive rod. |
| 13:35 | 14:00 | Allow the head to cool to operating temperatures. Head reads 160 F. |
| 14:00 | 14:30 | Drive to 173.8 ft bgs. Add a drive rod. |
| ---------- | ---------- | Mr. Randall complete Moisture logging @ C5943 (100.3 to 1.75, repeat 52.5 to 45 and 16.5 to 9 ft bgs). Also moisture logged C5963 from 100.3 to 94.75 ft bgs. |
| 14:30 | ---------- | Allow the head to cool to operating temperatures. Head reads 150 F. |
| ---------- | 15:30 | Secure site and equipment. Discuss driving operations and depth. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| WELL I.D.: C5947/C5963/C5943 | WELL NUMBER: N/A | REPORT NUMBER: 15 | DATE: 11-14-07 (Wednesday) |
|---|---|---|---|

| CONTRACT NUMBER: 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | START CARD NO: S27641/A118505<br>EXCAVATION PERMIT: DAN3277<br>(U-Dig Number 7363119) | RIG MODEL/NO: Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |
|---|---|---|

| PURPOSE: CONDUCT DRIVING (C5947) AND MOISTURE LOGGING @ C5963 | REFERENCE: FSWO-DOW-024<br>RWP: CO-362, Rev 6 | LOCATION: C Tank Farm<br>SW NE Section 2 12N 26E |
|---|---|---|

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: -28.5- ft

CONSTRUCTION DESCRIPTION: N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

BORING DEPTH *(include sampling depth)*

C5947 174 to 202.5 ft bgs
C5943 88 ft bgs

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9 Hrs.

*DOCUMENTED DOWNTIME:*
N/A

WEATHER CONDITIONS (373-2716)
Temperature 35 F; overcast

CASING SUMMARY

| |
|---|
| Casing depth (shift start) C5947 @ 174 ft; C5943 @ 104 ft bgs |
| Casing depth (shift end) C5947 @ 202.5 ft; C5943 @ 90 ft bgs |
| Casing stick up (shift end) C5947 @ 1.5 ft; C5943 @ 2.0 ft |
| Drive String Length C5947 @ 204 ft; C5943 @ 92 ft bgs |

SAMPLE SUMMARY

N/A

OPERATOR: K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG), P. Templeton, J. Clayton (HPT/CHG), M. Passey, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is defensive driving and deer/elk on roadways. Conduct site and equipment inspection. No deficiencies. |
| ——— | ---------- | Mr. Randall initiates Moisture logging at C5963 (100.3 to .75 ft bgs and repeat 67.5 to 64.5, 53.75 to 53, 33 to 30, and 11 to 4.75 ft bgs). |
| ——— | 09:10 | Conduct driving at C5947. Drive from 173.8 to 177.7 ft bgs. Add a drive rod. |
| 09:10 | 09:50 | Drive to 181.7 ft bgs. Add a drive rod. |
| 09:50 | 10:20 | Allow the head to cool to operating temperatures. Head reads 150 F. Eat Lunch as the head cools. |
| 10:20 | 10:43 | Drive to 185.7 ft bgs. Add a drive rod. Drive to 189.7 ft bgs. Add a drive rod. |
| 10:43 | 11:15 | Allow the head to cool to operating temperatures. Head reads 150 F. |
| 11:15 | 11:40 | Drive to 193.7 ft bgs. Add a drive rod. Drive to 197.7 ft bgs. Add a drive rod. |
| 11:40 | 12:19 | Drive to 202.2 ft bgs. A new depth record and penetration rates were still good. |
| 12:19 | 13:30 | Move and set-up on C5943. A tag reveals about 1 ft of fill. The bottom hole assembly had been prepped o-ring silicone. |
| ——— | ---------- | A QA audit was performed by Ms Shirley Myers. The result was no findings at 13:20. Mr. Randall completes Moisture logging @ C5963. |
| 13:30 | ---------- | Back-pull 4 sections of tubing. An attempt was made to knock out the tip with the weight and line. The tip would not clear the tip. Run the fishing string to bottom. Knock out the removable tip with the fishing string. |
| ——— | 15:30 | Secure site and equipment. Discuss driving operations and depth. |

*REPORT BY:* DE Skoglie
TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

*REVIEWED BY:* KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5943/C5951 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 16 | **DATE:** 11-15-07 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791 | **START CARD NO:** S27641/A118505 | **RIG MODEL/NO:** Hydraulic Hammer Unit |
| SUBCONTRACT NUMBER: 31672 | **EXCAVATION PERMIT:** DAN3277 | HHU CAT |
| OPERABLE UNIT: 200-BP-5 | (U-Dig Number 7363119) | AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT PROBE INSTALLATION AND DECOMMISSIONING (C5943) AND GAMMA/MOISTURE LOGGING @ C5951** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -90- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5943 90 to 0.0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 40 F; overcast

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5943 @ 90 ft |
| Casing depth (shift end) | C5943 @ 0.0 ft |
| Casing stick up (shift end) | 0.0 ft |
| Drive String Length | 0.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG);
P. Templeton, J. Clayton (HPT/CHG); M. Passey, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:50 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is wearing hunter orange. ***A weekly safety meeting was conducted. The topic was Slick Conditions. Snow, freezing rain, and Ice are right around the corner. Steps, work areas and pathways will need to be cleared and salt or other means of melting snow/ice will need to be conducted. If 2 inches or more of snow falls CH2M Hill procedures state the site will be evaluated. Additionally, traction devices may be required on boots.*** Conduct site and equipment inspection. No deficiencies. |
| ——— | ——— | Mr. Randall initiates Gamma logging at C5951 (100.5 to .5 ft and repeat 33 to 25, 20 to 2.5 ft bgs). |
| 08:50 | 09:35 | C5943: Mr. Olson removes fishing string, which was used to knockout the tip. |
| 09:35 | 10:14 | Place sand to a depth of 90 ft bgs. Place the moisture probe at 90 ft bgs. |
| 10:14 | 11:15 | Add sand (silica 20 – 40) and back-pull tubing to a depth of 82 ft bgs. Add 1.75 gallons sand (depth of sand is 83 ft bgs). |
| 11:15 | 11:30 | Place saline solution (4 gallons). |
| 11:30 | 12:00 | Lunch |
| 12:00 | ——— | Back-pull and place bentonite crumbles. Mr. Randall completes Gamma logging and initiates moisture logging (12:45). |
| ——— | 15:00 | Complete back-pulling and decommissioning @ C5943. Utilized 19 gallons bentonite crumbles. |
| ——— | ——— | Mr. Randall completes logging from 100 to 62 ft bgs @ C5951 (100.3 to 62.5 and repeat 66 to 62.5 ft bgs). |
| ——— | 15:30 | Secure site and equipment. Discuss driving operations and depth. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL/SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

| WELL I.D.: C5955/C5951/C5961 | WELL NUMBER: N/A | REPORT NUMBER: 17 | DATE: 11-19-07 (Monday) |
|---|---|---|---|

| CONTRACT NUMBER: 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | START CARD NO: S27641/A118505<br>EXCAVATION PERMIT: DAN3277<br>(U-Dig Number 7363119) | RIG MODEL/NO: Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |
|---|---|---|

| PURPOSE: CONDUCT DRIVING OPERATIONS (C5955) AND MOISTURE LOGGING @ C5951 AND C5961 | REFERENCE: FSWO-DOW-024<br>RWP: CO-362, Rev 6 | LOCATION: C Tank Farm<br>SW NE Section 2 12N 26E |
|---|---|---|

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: -104- ft

CONSTRUCTION DESCRIPTION: N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

BORING DEPTH *(include sampling depth)*

C5955 0 to 104 ft bgs

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9 Hrs.

*DOCUMENTED DOWNTIME:*
N/A

WEATHER CONDITIONS (373-2716)
Temperature 37 F; overcast w/rain

CASING SUMMARY

| | |
|---|---|
| Casing depth (shift start) | C5955 @ 0.0 ft |
| Casing depth (shift end) | C5955 @ 104.0 ft bgs |
| Casing stick up (shift end) | 2.5 ft |
| Drive String Length | 106.5 ft |

SAMPLE SUMMARY
N/A

OPERATOR: M. Repko
License no. 1580
S. Snook (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is food poisoning. A weekly safety topic was discussed (see page 2). Conduct site and equipment inspection. No deficiencies. |
| 08:30 | 09:00 | Move the HHU and support equipment to C5955. Set-up the equipment. |
| ---------- | ---------- | The drive tip has silicone placed to help eliminate soil from entering the tubing. Assemble drive tip (0.5 ft) and sub (2.0 ft) plus a 4 ft section of drive rod. Mr. Randall conducts moisture logging at C5951. |
| 09:00 | 09:10 | Drive to 4.7 ft bgs. Add a drive rod (4 ft). Drive to 8.7 ft bgs. Add a drive rod. |
| 09:10 | 09:22 | Drive to 12.8 ft bgs. Add a drive rod. Drive to 16.7 ft bgs. Add a drive rod. |
| 09:22 | 09:32 | Drive to 20.7 ft bgs. Add a drive rod. Drive to 24.8 ft bgs. Add a drive rod. |
| 09:32 | 10:13 | Drive to 28.8 ft bgs. Add a drive rod. Allow the head to cool for 35 minutes. Head was at 147 F. |
| 10:13 | 10:25 | Drive to 32.7 ft bgs. Add a drive rod. Drive to 36.8 ft bgs. Add a drive rod. |
| 10:25 | 10:33 | Drive to 40.7 ft bgs. Add a drive rod. Drive to 44.7 ft bgs. Add a drive rod. |
| 10:33 | 10:45 | Drive to 48.7 ft bgs. Add a drive rod. Drive to 52.7 ft bgs. Add a drive rod. |
| 10:45 | 11:30 | Drive to 56.7 ft bgs @ 10:55. Add a drive rod. Allow the head to cool for 35 minutes. Do Lunch. |
| 11:30 | 11:43 | Drive to 60.7 ft bgs. Add a drive rod. Drive to 64.8 ft bgs. Add a drive rod. |
| 11:43 | 12:00 | Drive to 68.7 ft bgs. Add a drive rod. Drive to 72.7 ft bgs. Add a drive rod. |
| 12:00 | 12:16 | Drive to 76.8 ft bgs. Add a drive rod. Drive to 80.7 ft bgs. Add a drive rod. |
| 12:16 | 13:10 | Drive to 84.7 ft bgs @ 10:55. Add a drive rod. Allow the head to cool for 40 minutes. |
| ---------- | ---------- | Mr. Randall completes moisture logging @ C5951 67.5 to 1 ft and repeat 30 to 25 ft and 12.25 to 10 ft bgs. |

*REPORT BY*: DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

*REVIEWED BY*: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

**FIELD ACTIVITY REPORT - TEXT CONTINUATION PAGE**

Page 2 of 2

| Date | Well No. | Continuation of Report No. |
|---|---|---|
| 11-19-07 | C5955/C5951/C5947 | 17 |

**DESCRIPTION OF OPERATIONS/REMARKS**

| | |
|---|---|
| 13:10 – 13:26 | Drive to 88.7 ft bgs. Add a drive rod. Drive to 92.8 ft bgs. Add a drive rod. |
| 13:26 – 13:40 | Drive to 96.7 ft bgs. Add a drive rod. Drive to 100.7 ft bgs. Add a drive rod. |
| 13:40 - 13:55 | Drive to 104.0 ft bgs. |
| 13:55 – 14:30 | Move the HHU and support equipment to C5951. Set-up equipment in preparation of decommissioning. |
| 14:30 – 15:00 | Secure site and equipment. |
| _____ | Mr. Randall conducts moisture logging at C5947 from 100 to 55 ft bgs with a repeat of 65 to 60 ft bgs. |
| 15:00 – 15:30 | Conduct daily documentation. |

***Weekly Safety Topic: A group discuss was held regarding rig operation and site conditions. Procedures, training and the manufacturer recommended operations manual is adequate. Personnel are conducting them-selves in a very professional and safe manner. Personnel are evaluating the driving system continuously and are improving work tasks. Personnel are being safe.***

| | | | | | |
|---|---|---|---|---|---|
| Report By | DE Skoglie | Reviewed By | KD Reynolds | | |
| Title | ES SITE TECHNICAL/SAFETY | Title | ES FIELD PROJECT MANAGER | Date | 5-28-08 |
| Signature | David E Skoglie | Signature | D.E. Skoglie for | | |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5951/C5959/C5961 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 18 | **DATE:** 11-20-07 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING OPERATIONS (C5951), DRIVING @ C5959 AND MOISTURE/GAMMA LOGGING @ C5961** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: -140.8- ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5951 88 to 0 ft bgs
C5959 0 to 52.8 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 43 F; clear skies

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5959 @ | 0.0 ft bgs |
| Casing depth (shift end) | C5959 @ | 52.8 ft bgs |
| Casing stick up (shift end) | | 1.7 ft |
| Drive String Length | | 54.5 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, M. Repko, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:43 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is fog and hazardous driving conditions. Conduct site and equipment inspection. No deficiencies. |
| -------- | -------- | Mr. Randall is conducting moisture logging at C5961 60 to 1 ft bgs and repeat 33 to 30 ft bgs. |
| -------- | -------- | Teamsters pick-up tumbleweeds from location. |
| 08:43 | 09:20 | C5951: Attempt to knock out the tip. The tubing has soil inside and the tip would not release. The knockout bar is radiologically clean. |
| 09:20 | -------- | The formation has been staying open. Therefore the tubing will be pulled and bentonite crumbles added from surface. |
| -------- | 10:40 | Back-pull casing to a depth of 52 ft bgs. |
| 10:40 | 11:15 | Continue back-pull at C5951 until drive shoe is at surface. The amount of soil in the internals of the tubing is ~6 inches. Clean out, no radiological contamination was noted. Add 4 sacks bentonite crumbles. |
| 11:15 | 11:55 | Move the HHU and support equipment to C5959. A roadway going over the berm makes the HHU set-up unlevel. |
| 11:55 | 12:25 | Lunch |
| -------- | -------- | Mr. Randall completes moisture logging at C5961 and initiates gamma logging. |
| 12:25 | 12:43 | Drive to 4.7 ft bgs. Add a drive rod (4 ft). Drive to 8.7 ft bgs. Add a drive rod. |
| 12:43 | 13:09 | Drive to 12.8 ft bgs. Add a drive rod. Drive to 16.7 ft bgs. Add a drive rod. |
| 13:09 | 13:38 | Drive to 20.7 ft bgs. Add a drive rod. Drive to 24.8 ft bgs. Add a drive rod. |
| 13:38 | 13:55 | Drive to 28.8 ft bgs. Add a drive rod. |
| 13:55 | 14:15 | Drive to 32.7 ft bgs. Add a drive rod. Drive to 36.8 ft bgs. Add a drive rod. |
| 14:15 | 14:42 | Drive to 40.7 ft bgs. Add a drive rod. Drive to 44.7 ft bgs. Add a drive rod. |
| 14:42 | 15:00 | Drive to 48.7 ft bgs. Add a drive rod. Drive to 52.8 ft bgs. |
| -------- | -------- | Mr. Randall Gamma logs C5961 from 100.5 to 22.5 and repeat 50 to 45 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5955/C5959 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 19 | **DATE:** 11-21-07 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING OPERATIONS @ C5959 AND GAMMA LOGGING @ C5955** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -51.2- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5959 52.8 to 104 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 34 F; overcast/frost

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5959 @ 52.8.0 ft bgs |
| Casing depth (shift end) | C5959 @ 104.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 106.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** M. Repko
License no. 1580
S. Snook (OP/CHG); J. Clayton (HPT/CHG); M. Passey, M. Repko, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TO | |
|---|---|---|
| 06:00 | 08:43 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is Holiday driving. Conduct site and equipment inspection. No deficiencies. |
| ——— | ——— | Mr. Randall is conducting Gamma logging at C5955 100.5 to 1 ft bgs and repeat 30 to 25 and 12 to 8 ft bgs. |
| 08:43 | 09:15 | C5959: Drive from 52.8 to 56.8 ft bgs. Add a drive rod (4 ft). Drive to 60.7 ft bgs. Add a drive rod. |
| 09:15 | 09:32 | Drive to 64.7 ft bgs. Add a drive rod. Drive to 68.7 ft bgs. Add a drive rod. |
| 09:32 | 10:13 | Shut down driving to allow the head to cool. |
| 10:13 | 10:40 | Drive to 72.8 ft bgs. Add a drive rod. Drive to 76.7 ft bgs. Add a drive rod. |
| 10:40 | 11:00 | Drive to 80.7 ft bgs. Add a drive rod. Drive to 84.7 ft bgs. Add a drive rod. |
| 11:00 | ——— | Shut down driving to allow the head to cool. |
| ——— | 11:30 | Drive to 88.8 ft bgs. Add a drive rod. Drive to 92.8 ft bgs. Add a drive rod. |
| 11:30 | 11:45 | Drive to 96.7 ft bgs. Add a drive rod. Drive to 100.7 ft bgs. Add a drive rod. |
| 11:45 | 12:00 | Drive to 104.0 ft bgs. |
| 12:00 | 13:30 | Lunch (CH2M Hill provided a Thanksgiving lunch). |
| 13:30 | 15:00 | Complete documentation and conduct HHU maintenance. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5961/C5959 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 20 | **DATE:** 11-26-07 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING OPERATIONS (C5961) AND GAMMA LOGGING @ C5961 AND C5959** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -104- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5961 104 to 0.0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 34 F; overcast/frost

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5961 @ 104.0 ft bgs |
| Casing depth (shift end) | C5961 @ 0.0 ft bgs |
| Casing stick up (shift end) | 0.0 ft |
| Drive String Length | 0.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR**: M. Repko
License no. 1580
S. Snook (OP/CHG); J. Clayton (HPT/CHG); M. Passey, M. Repko, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is slick road and walking conditions. Conduct site and equipment inspection. No deficiencies. |
| --------- | --------- | Mr. Randall is conducting Gamma logging at C5961. |
| 08:40 | 09:30 | Prep tips for driving placing silicone at removable tip interfaces. |
| 09:30 | 10:00 | Mr. Randall completes Gamma logging at C5961 (30 to 1 ft and repeat 10 to 1 ft bgs). Move and set-up on C5959. |
| 10:00 | 10:25 | Move and set-up the HHU and support equipment at C5961. Ready for decommissioning. |
| 10:25 | 10:40 | Initiate decommissioning back-pulling tubing and knock out the tip. No fill in tubing (used blue silicone). |
| 10:40 | 11:30 | Add bentonite crumbles and back-pull tubing to a depth of 74 ft bgs. |
| 11:30 | 12:00 | Lunch |
| 12:00 | --------- | Conduct decommissioning activities by back-pulling tubing and adding bentonite crumbles. |
| --------- | 14:25 | Complete decommissioning of C5961. Tag C5947. 4 ft of fill exists in tubing. |
| 14:25 | 14:35 | Complete Gamma logging at C5959 (radiological hit at 8 ft bgs). Download and print plot. |
| 14:35 | 15:15 | Secure site and equipment. |
| 15:15 | 15:30 | Snow is expected. Precautions are taken in securing equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David T. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5947/C5959/C5957 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 21 | **DATE:** 11-27-07 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DRIVING OPERATIONS (C5957) AND GAMMA LOGGING @ C5959** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -104- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5957 0.0 to 104.0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 38 F; overcast/frost

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5957 @ 0.0 ft bgs |
| Casing depth (shift end) | C5957 @ 104.0 ft bgs |
| Casing stick up (shift end) | 0.0 ft |
| Drive String Length | 0.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** M. Repko
License no. 1217
S. Snook (OP/CHG); J. Clayton (HPT/CHG); M. Passey, M. Repko, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 07:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is slick road and walking conditions. A weekly safety topic was held (see page 2). Conduct site and equipment inspection. No deficiencies. |
| -------- | -------- | Mr. Randall is conducting Gamma logging at C5947 (199.5 to 94.5 and repeat 129.5 to 124.5 ft bgs. |
| 07:30 | 08:00 | The crew locates and picks up necessary items to cleanout C5947. C5947 has 4 ft of fill inside the tubing. Sampling rod in conjunction with a dual wall sampler will be used to remove soil from inside the tubing. |
| 08:00 | 08:14 | The HHU and support equipment is moved and set-up on C5957. |
| 08:14 | -------- | Initiate driving at C5957. |
| -------- | 08:28 | Drive to 4.7 ft bgs. Add a drive rod (4 ft). Drive to 8.7 ft bgs. Add a drive rod. |
| 08:28 | 08:45 | Drive to 12.8 ft bgs. Add a drive rod. Drive to 16.7 ft bgs. Add a drive rod. |
| 08:45 | 09:04 | Drive to 20.7 ft bgs. Add a drive rod. Drive to 24.8 ft bgs. Add a drive rod. |
| 09:20 | 09:39 | Drive to 28.8 ft bgs. Add a drive rod. Allow the head to cool for 35 minutes. Head was at 147 F. |
| 09:55 | 10:17 | Drive to 32.7 ft bgs. Add a drive rod. Drive to 36.8 ft bgs. Add a drive rod. |
| 10:17 | 10:40 | Drive to 40.7 ft bgs. Add a drive rod. Drive to 44.7 ft bgs. Add a drive rod. |
| 10:40 | 11:00 | Drive to 48.7 ft bgs. Add a drive rod. Drive to 52.7 ft bgs. Add a drive rod. |
| 11:00 | 12:16 | Drive to 56.7 ft bgs @ 10:55. Add a drive rod. Allow the head to cool for 35 minutes. Do Lunch. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

**FIELD ACTIVITY REPORT - TEXT CONTINUATION PAGE**

Page 2 of 2

| Date | Well No. | Continuation of Report No. |
|---|---|---|
| 11-27-07 | C5955/C5951/C5947 | 21 |

| | DESCRIPTION OF OPERATIONS/REMARKS |
|---|---|
| 12:16 – 12:32 | Drive to 60.8 ft bgs. Add a drive rod. Drive to 64.8 ft bgs. Add a drive rod. |
| 12:32 – 12:49 | Drive to 68.7 ft bgs. Add a drive rod. Drive to 72.8 ft bgs. Add a drive rod. |
| 12:49 – 13:03 | Drive to 76.8 ft bgs. Add a drive rod. Drive to 80.7 ft bgs. Add a drive rod. |
| 13:03 – 13:14 | Drive to 84.8 ft bgs. Add a drive rod. |
| 13:14 – 13:32 | Drive to 88.7 ft bgs. Add a drive rod. Drive to 92.8 ft bgs. Add a drive rod. |
| 13:32 – 13:55 | Drive to 88.7 ft bgs. Add a drive rod. Drive to 92.8 ft bgs. Add a drive rod. |
| 13:55 – 14:15 | Drive to 96.7 ft bgs. Add a drive rod. Drive to 100.7 ft bgs. Add a drive rod. |
| 14:15 - 14:30 | Drive to 104.0 ft bgs. |
| 14:30 – 15:00 | Secure site and equipment. . Snow is expected. Precautions are taken in securing equipment. |
| 15:00 – 15:30 | Conduct daily documentation. |

***Weekly Safety Topic: The site specific Activity Hazardous Analysis addresses personal protective equipment (PPE) for Level D work. The AHA states hard hat, steel toed boots, leather gloves and safety glasses are required. Additionally, hearing protection is necessary and depending on the task at hand depends on whether it is singles or doubles. PPE may change with work-site parameters, that is, radiological or hazardous environments.***

| | | | | | |
|---|---|---|---|---|---|
| Report By | DE Skoglie | Reviewed By | KD Reynolds | | |
| Title | Site Technical Rep. | Title | | Date | 5-5-08 |
| Signature | David E. Skoglie | Signature | Kent D Reynolds | | |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 22 | **DATE:** 11-28-07 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: MOISTURE LOGGING @ C5947 (200 TO 95 FT BGS)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -0.0- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 33 F; overcast/frost

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); J. Clayton (HPT/CHG); M. Passey, M. Repko, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is slick road and walking conditions. Conduct site and equipment inspection. No deficiencies. |
| -------- | -------- | Mr. Randall is conducting moisture logging at C5947 (199.5 to 94.75 and repeat 163.5 to 158.75 ft bgs). |
| -------- | -------- | Their will be no driving today. Awaiting for completion of log. |
| 08:40 | -------- | Personnel winterize hydraulic jack power unit located in the lay-down yard near the SMURF building. |
| -------- | 12:00 | Also record a tally on 8 inch casing. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:25 | Remove accumulator from the HHU. The low pressure (8 bar) diaphram is blown. |
| 14:25 | 14:35 | Moisture logging conducted from 200 to 95 ft bgs. Download and print plot. |
| 14:35 | 15:15 | Secure site and equipment. |
| 15:15 | 15:30 | Snow is expected. Precautions are taken in securing equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David T. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 23 | **DATE:** 11-29-07 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: MOISTURE LOGGING @ C5947 (95 TO 20 FT BGS)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -0.0- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*

N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***

9 hr due to winter hazards

**WEATHER CONDITIONS** (373-2716)

Temperature 34 F; overcast/frost

| CASING SUMMARY | |
|---|---|
| Casing depth (shift start) | N/A |
| Casing depth (shift end) | N/A |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |
| **SAMPLE SUMMARY** | |
| N/A | |

**OPERATOR:** K. Olson

License no. 1217

S. Snook, Izzy (OP/CHG); J. Clayton (HPT/CHG); M. Passey, M. Repko, D. Skoglie (Energy Solutions), B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is slick road and walking conditions. Conduct site and equipment inspection. No deficiencies. Snow is here. Tank Farms is initiating AOP-017 (Response to Winter Hazards). |
| ---------- | ---------- | Mr. Randall is conducting moisture logging at C5947 (100 to 20 ft and repeat 53 to 50 ft bgs). |
| 08:30 | ---------- | Remove accumulator from the HHU. The low pressure (8 bar) diaphram is blown. The center has come apart. |
| ---------- | 12:00 | Replace diaphragm and recharge on test bench. |
| 12:00 | 12:30 | Lunch |
| ---------- | ---------- | The accumulator will be evaluated on Monday for leakage. |
| ---------- | ---------- | C5947: Moisture logging conducted from 95 to 20 ft bgs. Download and print plot. |
| 12:30 | 15:15 | Conduct clean-up of the horse trailer. Secure site and equipment. |
| 15:15 | 15:30 | Snow is expected. Precautions are taken in securing equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5953 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 24 | **DATE:** 12-03-07 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN TIME DUE TO HIGH WINDS** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -0.0- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
9 Hrs. due to high winds.

**WEATHER CONDITIONS** (373-2716)
Temperature 57 F; overcast/high winds

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | 0.0 ft |
| Drive String Length | 0.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); J. Clayton, P. Templeton (HPT/CHG); M. Passey, M. Repko, M. Walkup (Energy Solutions) B. Randall

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 11:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic is windy conditions. Conduct site and equipment inspection. No deficiencies. AOP 008 is in effect due to high winds. No work packages released by CHG. Repaired and replaced low pressure accumulator on CAT HHU. |
| 11:30 | 12:00 | Lunch |
| 12:00 | 15:30 | Still on standby AOP 008. Finished maintenance on CAT HHU. Put away materials and tooling that were delivered to site by Mavrik Environmental. No logging activities were completed. Took sampling equipment to 5-Bay for cleaning. |
| | | |

***REPORT BY***: MW Walkup
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David Shaglin for

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5953/C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 25 | **DATE:** 12-04-07 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER: 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN TIME DUE TO AOP-008 (5 HR) DRIVE @ C5953** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: -51- ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5953 0 to 51.0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
5 Hrs. for high winds. AOP 008

**WEATHER CONDITIONS** (373-2716)
Temperature 61 F; partly cloudy/winds 30-40 mph.

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5953 @ | 0.0 ft bgs |
| Casing depth (shift end) | C5953 @ | 51.0 ft bgs |
| Casing stick up (shift end) | | 2.0 ft |
| Drive String Length | | 53.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. I217
S. Snook, Izzy (OP/CHG); J. Clayton P. Templeton (HPT/CHG); M. Passey, M. Repko, M. Walkup (Energy Solutions) B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 10:00 | Mr. Snook (NCO) to SMURF building for Work Package. ACE. Conducted Plan-of-the-Day meeting. The Safety topic is performance of 360 degree walk-around of all equipment. ***A weekly safety topic was conducted as noted: OSHA requirements for ladders. Ladders shall be capable of supporting the following loads without failure. 1) Self supporting ladder – at least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load. 2) Non-Self supporting ladder – at least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load. 3) Fixed ladder – at least two loads of 250 lbs each, concentrated between any two consecutive attachments, plus anticipated loads caused by ice buildup, winds rigging and impact loads resulting from use of the ladder safety devices.*** Conduct site and equipment inspection. No deficiencies. Move CAT HHU from borehole #C5961 and set-up on borehole #C5953. Drive 2.5" casing from G.S. to 51.0' bgs. |
| ——— | ——— | Mr. Randall is completing moisture logging from 20.0' bgs to G.S. in borehole #C5947 (25 to 1 ft and repeat 20 to 14 ft bgs). |
| 10:00 | 11:30 | AOP 008 in effect by CHG for high winds. Standby. |
| 11:30 | 12:00 | Lunch |
| 12:00 | 15:30 | AOP 008 is still in effect by CHG for high winds. Clean horse trailer and site. Secure for end of shift. |
| | | |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5953/C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 26 | **DATE:** 12-05-07 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791 | **START CARD NO:** S27641/A118505 | **RIG MODEL/NO:** Hydraulic Hammer Unit |
| SUBCONTRACT NUMBER: 31672 | **EXCAVATION PERMIT:** DAN3277 | HHU CAT |
| OPERABLE UNIT: 200-BP-5 | (U-Dig Number 7363119) | AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DRIVING @ C5953, GYRO @ C5947 AND GAMMA LOG @ C5953** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -53- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5953 51 to 104 ft bgs
C5947 202.5 to 170.5 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 49 F; mostly cloudy

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5953 @ | 50.0 ft bgs |
| Casing depth (shift end) | C5953 @ | 104.0 ft bgs |
| Casing stick up (shift end) | | 2.0 ft |
| Drive String Length | | 106.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
Izzy (OP/CHG); P. Templeton (HPT/CHG); M. Passey, M. Ehrgott M. Walkup (Energy Solutions) B. Randall, R. Price (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Villareal (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is proper use of hand signals on the HHU. Conduct site and equipment inspection. No deficiencies. |
| 08:40 | 11:30 | Complete driving boring #C5953 from 51.0' bgs to TD @ 104.0' bgs B. Randall and R. Price of NW Geophysics completing Gyro survey (deviation) at boring #C5947. |
| 11:30 | 12:00 | Lunch |
| 12:00 | 12:40 | Moved off boring #C5953 and set-up on boring #C5947. |
| 12:40 | 13:36 | Checked low pressure (8 bar) accumulator on CAT HHU. Diaphram in accumulator had blown out again. Repaired and replaced back on CAT HHU. |
| ---------- | ---------- | B. Randall completed Gamma logging @ C5953 from 104.0' bgs to 50.0' bgs and repeat 55 to 49.5 ft bgs. |
| 13:36 | 15:00 | Back-pulled 32.0' of 2.5" tubing from boring #C5947 (depth of tubing is 170.5 ft bgs. Tagged DTB at 165.0' bgs. Ran 104.0' of dual wall inner string and 2.0' blank into boring #C5947 for cleanout operations. |
| 15:00 | 15:30 | Secured site for end of shift. |

| | |
|---|---|
| ***REPORT BY:*** MW Walkup<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Shogle for | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5953 & C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 27 | **DATE:** 12-06-07 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE GAMMA LOG @ C5953, GAMMA LOG @ C5957; CONDUCT CLEAN-OUT @ C5947.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -0.0- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 41 F; mostly cloudy/chance of rain.

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5947 @ | 170.5 ft bgs |
| Casing depth (shift end) | C5947 @ | 170.5 ft bgs |
| Casing stick up (shift end) | | 0.0 ft |
| Drive String Length | | 0.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
Izzy, S. Snook (OP/CHG); P. Templeton (HPT/CHG); M. Passey, M. Repko, M. Walkup (ENERGY SOLUTIONS) B. Randall

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:45 | Mr. Villareal (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is following all policies and procedures. Conduct site and equipment inspection. No deficiencies. |
| 08:45 | 12:30 | B. Randall completed Gamma logging @ C5953 from 55' bgs to 1 ft bgs and Gamma logging @ C5957 from 100 to 1 ft bgs with a repat of 45 to 40 ft bgs. C5947: Finished tripping dual wall inner string and 2.0' blank into boring. Drove 2.0' into fill and removed string from boring. 2.0' of fill material was in dual wall blank. One more pass will be needed to finish clean-out. Ran dual wall string back into boring to TD. Drove inner string and knocked out tip. Operator and crew heard a popping noise as the inner string was being extracted. The inner string separated at 24.0' bgs. |
| 12:30 | 13:00 | Lunch |
| 13:00 | 15:30 | Threads on inner string pin did not appear to be damaged. Used Teflon tape on threads and went back in borehole. 2.5" tubing has fill still in the bottom. Worked inner string up and down trying to free it up. B. Randall completes Gamma logging @ C5957. Secured site for end of shift. |
| | | |

***REPORT BY:*** M.W. Walkup
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David F. Slaughter for

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: _____

ENERGYSOLUTIONS

**Energy Solutions Inc. Western Operations**

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

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5957 & C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 28 | **DATE:** 12-07-07 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: MOISTURE LOG @ C5957, CONTINUE CLEAN-OUT @ C5947** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: -0.0- ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 41 F; mostly cloudy/chance of rain.

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5947 @ | 170.5 ft bgs |
| Casing depth (shift end) | C5947 @ | 160.0 ft bgs |
| Casing stick up (shift end) | | 2.0 ft |
| Drive String Length | | 162.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
Izzy, (OP/CHG); J. Clayton (HPT/CHG); M. Passey, M. Walkup (ENERGY SOLUTIONS) B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:35 | Mr. Villareal (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is bending and twisting. Conduct site and equipment inspection. No deficiencies. |
| 08:35 | 12:30 | B. Randall Moisture logging @ C5957 from 100 to 27 ft bgs and a repeat of 55 to 50 ft bgs. Finished clean-out below tubing @ C5947. Started back-pulling inner string. |
| 12:30 | 13:00 | Lunch |
| 13:00 | 14:30 | Completed back-pulling of inner string @ C5947. Back-pulled outer 2.5" casing from 170.5' bgs to 160.0' bgs. B. Randall Moisture logged back to 27.0' @ C5957. Secured site for end of shift. |
| | | |

***REPORT BY:*** MW Walkup
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Slaughter 5/17

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5957 & C5947 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 29 | **DATE:** 12-10-07 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: MOISTURE LOG @ C5957 AND C5959. INSTALL MOISTURE PROBE @ C5947 AND BEGIN DECOMMISSIONING.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -29- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5947 160 to 131 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 33 F; mostly sunny and cold.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5947 @ 160.0 ft bgs |
| Casing depth (shift end) | C5947 @ 131.0 ft bgs |
| Casing stick up (shift end) | 3.0 ft |
| Drive String Length | 134.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
Izzy, S. Snook (OP/CHG); P. Templeton, M. Young (HPT/CHG); M. Passey, M. Walkup (ENERGY SOLUTIONS) B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:45 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is driving and working on snow covered surfaces. Conduct site and equipment inspection. No deficiencies. |
| 08:45 | 12:15 | B. Randall Moisture logging @ C5957 from 35.5 to 1 ft bgs. C5947: Taped moisture probe, and installed a 150.0' bgs. Installed sand to 143.0' bgs. Added saltwater solution. Back-pulled 2.5" casing to 131.0' bgs. B. Randall Moisture logging at C5959 from 100.3 to 30 ft bgs and a repeat of 60 to 55 ft bgs. |
| 12:15 | 12:45 | Lunch |
| 12:45 | 15:30 | B. Randall Moisture logged @ C5957 to G.S. and Moisture logged @ C5953 from 100.0' bgs to 28.0' bgs. Put tooling away at Energy Northwest. |
| | | |

***REPORT BY:*** MW Walkup
TITLE: ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David F. Shoglin for

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5953/C5947/C5952 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 30 | **DATE:** 12-11-07 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: MOISTURE LOG @ C5959 AND C5953. COMPLETE DECOMMISSIONING @ C5947. DRIVE TO A DEPTH OF 9.5 FT BGS @ C5952.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -139.5- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5947 131 to 1 ft bgs
C5952 0 to 9.5 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 27 F; mostly sunny and cold.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952 @ -0-' ft bgs |
| Casing depth (shift end) | C5952 @ 9.5' bgs. |
| Casing stick up (shift end) | 1.5' |
| Drive String Length | 11.0' |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
Izzy, S. Snook (OP/CHG); P. Templeton, M. Young (HPT/CHG); M. Passey, M. Walkup (ENERGY SOLUTIONS) B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is using fall protection when required. Performed equipment and site inspection. No deficiencies. |
| 08:40 | ---------- | B. Randall Moisture logging @ C5959 from 35 to .75 ft bgs. |
| ---------- | 11:30 | Back-pulled 2.5" casing @ C5947 from 131.0' bgs to 62.0' bgs. |
| 11:30 | 12:00 | Lunch |
| 12:00 | ---------- | B. Randall Moisture logged @ C5953 from 100.0' bgs to 28.0' bgs. |
| ---------- | 15:00 | Back-pulled 2.5" casing @ C5947 from 62.0' bgs to 1.0 ft bgs. Moved CAT HHU to sample borehole #C5952, set-up and drove dual wall casing from G.S. to first sample interval at 9.5' bgs. No sample was driven. |
| 15:00 | 15:30 | Secured site for end of shift. |

***REPORT BY:*** MW Walkup
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David C. Vaughn Jr

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kelly Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5955 & C5952 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 31 | **DATE:** 12-12-07 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C5952: DRIVE 1ST AND 2ND SAMPLE; MOISTURE LOG @ C5953.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 34.5** ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5952 9.5 to 44 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME**: 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 34 F; cloudy and cold.

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5952 @ | 9.5 ft bgs |
| Casing depth (shift end) | C5952 @ | 44.0 ft. bgs |
| Casing stick up (shift end) | | 2.0 ft. |
| Drive String Length | | 46.0 ft. |

**SAMPLE SUMMARY**
Sample 9.5 to 11.5 ft bgs 10% recovery B1RTF8
Sample 11.5 to 13.5 ft bgs 25% recovery B1RTF9A

**OPERATOR:** K. Olson
License no. 1217
Ruben (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, M. Walkup (ENERGY SOLUTIONS) B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:50 | Ruben (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is use of proper lifting techniques. Performed equipment and site inspection. No deficiencies. |
| 08:50 | ---------- | B. Randall Moisture logging @ C5953 from 33.5 to1 ft bgs with a repeat of 11 to 1 ft bgs. |
| ---------- | 11:30 | Drove 1st sample @ C5952 from 9.5' bgs to 11.5' bgs at 1002 Hrs. ~10% recovery. Decision made by H. Sydnor CHG to try again from 11.5' bgs to 13.5' bgs. Sample was driven at 1055 Hrs. ~25% recovery. Rocks are getting up into the shoe and liners. |
| 11:30 | 12:20 | Decision made by H. Sydnor to drive dual string to 2nd sample interval at 60.0' bgs. C5952: Drove dual wall system to 32.0' bgs. |
| 12:20 | 12:50 | Lunch |
| 12:50 | ---------- | B. Randall Moisture logged @ C5955 from 100.3 to 38.5 ft bgs. |
| ---------- | 14:45 | Drove dual wall string from 32.0' bgs to 34.0' bgs. At 34.0' bgs dual wall casing started floating down the boring with no resistance. Stopped running casing at 44.0' bgs. Notified H. Sydnor CHG. Apparently we dropped into boring #C5951 which had been abandoned. |
| 14:45 | 15:00 | Decision was made by CH2M Hill to abandon boring #C5952. Secured site for end of shift. |
| 15:00 | 15:30 | Secure the site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** MW Walkup<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Slaughter for | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5955 & C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 32 | **DATE:** 12-13-07 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE 1ST SAMPLE @ C5952A AND DRIVE DUMMY TO 2ND SAMPLE INTERVAL @ 14.0' BGS. MOISTURE LOG @ C5955 AND DECOMMISSION #C5952.** | **REFERENCE:** PSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 58 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5952 Decommissioned
C5952A 0 to 14 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 31 F; cloudy and cold.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952A @ 0.0 ft bgs |
| Casing depth (shift end) | C5952A @ 14.0 ft bgs. |
| Casing stick up (shift end) | 4.0 ft |
| Drive String Length | 18.0 ft |

**SAMPLE SUMMARY**
Sample B1RTH0 form 9.5 to 11.5 ft bgs 10% Recovery

**OPERATOR**: K. Olson
License no. 1217
Ruben (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, M. Walkup (ENERGY SOLUTIONS) B. Randall (NW Geophysics).

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is proper use of hand signals between driller and helper. ***A weekly safety meeting was held as follows: Slips, trips and falls. Personnel shall be aware of potential slips, trips and falls. Keep an eye on surrounding and work areas for unsafe conditions. Be pro-active and maintain a safe work environment. If an unsafe condition develops – stop work and fix or replace the problem.*** Performed site and vehicle inspection. No deficiencies. |
| 08:30 | ---------- | B. Randall completed Moisture logging @ C5955 from 43.5 to 1 ft bgs and repeat 12 to 7 ft bgs. |
| ---------- | 11:30 | C5952: Back-pulled from 44.0' bgs to G.S. @ sample boring #C5952 and decommissioned. |
| 11:30 | 12:00 | Moved CAT HHU and set-up on sample boring #C5952A. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:10 | Changed out teeth inserts in jaw clamps. |
| 13:10 | 13:55 | Drove dual wall system to 1st sample interval in #C5952A at 9.5' bgs. |
| 13:55 | 14:40 | Drove sample #B1RTH0 at 13:00 hrs from 9.5' bgs to 11.5' bgs. ~10% recovery. Large gravels blocked shoe and liners. Decision was made by CH2M to try and sample from 14.0' bgs to 16.0' bgs. |
| 14:40 | 15:30 | Drove dual wall system to 2nd sample interval at 14.0' bgs. No sample was driven. Secured site for end of shift. |

***REPORT BY:*** MW Walkup
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David F. Shogle Jr

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| WELL I.D.: C5952A | WELL NUMBER: N/A | REPORT NUMBER: 33 | DATE: 12-17-07 (Monday) |
|---|---|---|---|

| CONTRACT NUMBER: 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | START CARD NO: S27641/A118505<br>EXCAVATION PERMIT: DAN3277<br>(U-Dig Number 7363119) | RIG MODEL/NO: Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |
|---|---|---|

| PURPOSE: DRIVE 2ND SAMPLE @ C5952A, OBTAIN SAMPLE AND DRIVE TO 3RD SAMPLE INTERVAL @ 60.0' BGS. | REFERENCE: FSWO-DOW-024<br>RWP: CO-362, Rev 6 | LOCATION: C Tank Farm<br>SW NE Section 2 12N 26E |
|---|---|---|

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: 46 ft

CONSTRUCTION DESCRIPTION: N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

BORING DEPTH *(include sampling depth)*

C5952A 14 to 60 ft bgs

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9 Hrs.

*DOCUMENTED DOWNTIME:*

N/A

WEATHER CONDITIONS (373-2716)

Temperature 41 F; cloudy/chance of rain and mixed snow

CASING SUMMARY

| | | |
|---|---|---|
| Casing depth (shift start) | C5952A @ | 14.0 ft bgs |
| Casing depth (shift end) | C5952A @ | 60.0 ft bgs |
| Casing stick up (shift end) | | 2.0 ft |
| Drive String Length | | 62.0 ft |

SAMPLE SUMMARY

Sample B1RTH1 14 to 16 ft bgs 50% Recovery

OPERATOR: K. Olson

License no. 1217

S. Snook, J. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, D. Skoglie, M. Repko (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is frostbite recognition and first aid for it. Performed site and vehicle inspection. No deficiencies. |
| 08:40 | 12:00 | Drove sample #B1RTH1 from 14.0' bgs to 16.0' bgs @ 09:14 Hrs. Sample recovery was 50%. Sample was collected by FH K. Hulse. J. Anten of Mavrik Environmental and H. Sydnor of CH2M onsite delivering more parts for the dual wall string. Continued driving dual wall string from 16.0' bgs to 53.0' bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:10 | Drive dual wall to a depth of 60 ft bgs. |
| 13:10 | 14:00 | Trip center rod out of dual wall drive string. |
| 14:00 | 15:00 | Install a sampler on the inner-string. Trip to bottom. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 34 | **DATE:** 12-18-07 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO RAIN** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -0.0- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 44 F; cloudy/rain and winds

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) C5952A @ | 60.0 ft bgs |
| Casing depth (shift end) C5952A @ | 60.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 62.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, J. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, D. Skoglie, M. Repko (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is Cutting and Welding. Performed site and equipment inspection. No deficiencies noted. |
| 08:40 | 12:00 | Due to rain a sample could not be removed from the borehole (survey requirements). Personnel conduct house keeping. Review AOP's. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | The team reviewed equipment in the horse trailer and reorganized. |
| 15:00 | 15:30 | Secured site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [illegible]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 35 | **DATE:** 12-19-07 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO NO NCO (SAMPLER) SUPPORT (SAFETY STANDDOWN)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -0.0- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 44 F; cloudy/rain and winds

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952A @ 60.0 ft bgs |
| Casing depth (shift end) | C5952A @ 60.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 62.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, J. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, D. Skoglie, M. Repko (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is performing tasks by hand. Performed site and equipment inspection. No deficiencies noted. |
| 08:40 | 12:00 | Due to no NCO support a sample will not be obtained today. FH is in a safety stand-down. Personnel conduct yard work and organization. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | The team reviewed equipment in the horse trailer and reorganized. |
| 15:00 | 15:30 | Secured site and equipment. |
| | | |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [illegible]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 36 | **DATE:** 12-20-07 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydranlic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE AND RETRIEVE SAMPLE, DRIVE TO NEXT SAMPLE DEPTH (80 FT BGS)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 20 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5952A 60 to 80 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 48 F; windy

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952A @ 60.0 ft bgs |
| Casing depth (shift end) | C5952A @ 80.0 ft bgs |
| Casing stick up (shift end) | |
| Drive String Length | |

**SAMPLE SUMMARY**
Sample # BIRTH2 60 to 62 ft 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, J. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, D. Skoglie, M. Repko (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is blowing dust and the wind chill factor. ***A weekly safety meeting was held as follows: Training requirements – It is the responsibility of the employee to maintain training current. If the employee feels his training is inadequate he/she should discuss with his/her supervisor. Training is a very important part of working safely.*** Performed site and equipment inspection. No deficiencies noted. |
| 08:30 | ——— | The FH Stand-down was cleared yesterday PM. Therefore we will have NCO (sampler) support today. |
| ——— | ——— | Contacts were made for appropriate support personnel to be on site. The wind is picking up and expected to reach gusts to 30 mph this AM. |
| ——— | 09:00 | Drive a sample (BIRTH2) from 60 to 62 ft bgs and pull from the borehole. Sample was drove at 09:00. |
| 09:00 | ——— | The NCO (Mr. Jim Hogan) packages and transports the sample to the lab. |
| ——— | 09:40 | The Drive tip was reinstalled. |
| 09:40 | 11:10 | Drive the 2 5/8 tubing to a depth of 80 ft bgs. |
| 11:10 | 12:00 | Trip out the inner string. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:20 | Install a sampler to depth. Set-up head for driving sampler. |
| 13:20 | 15:00 | Conduct field documentation and evaluate upcoming work. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 37 | **DATE:** 12-21-07 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE AND RETRIEVE SAMPLE, DRIVE TO NEXT SAMPLE DEPTH (100 FT BGS)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 20 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(Include sampling depth)*
C5952A 80 to 100 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 47 F; clear skies

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952A @ 80.0 ft bgs |
| Casing depth (shift end) | C5952A @ 100.0 ft bgs |
| Casing stick up (shift end) | |
| Drive String Length | |

**SAMPLE SUMMARY**
Sample # BIRTH3 80 to 82 ft 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
J. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Passey, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic is blowing dust and the wind chill factor. Performed site and equipment inspection. No deficiencies noted. |
| 08:30 | ——— | Drive a sample (BIRTH3) from 80 to 82 ft bgs and pull from borehole. Sample was drove at 08:55. |
| 08:55 | ——— | The NCO (Mr. Karl Hulse) packages and transports the sample to the lab. |
| ——— | 10:10 | The Drive tip was reinstalled. |
| 10:10 | 11:10 | Drive the 2 5/8 tubing to a depth of 100 ft bgs. |
| 12:00 | 14:30 | Lunch @ SMURF (CH2M Hill prepared a Christmas lunch). |
| 15:00 | 15:30 | Secure site and equipment. |
| ——— | ——— | NOTE: Due to the Christmas Holiday there will be no field work next week, work will resume 12/31/07. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: [illegible] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 38 | **DATE:** 12-31-07 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE AND RETRIEVE SAMPLE, DRIVE TO NEXT SAMPLE DEPTH (118 FT BGS)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 18 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5952A 100 to 118 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 30 F; clear skies

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952A @ 100.0 ft bgs |
| Casing depth (shift end) | C5952A @ 118.0 ft bgs |
| Casing stick up (shift end) | |
| Drive String Length | |

**SAMPLE SUMMARY**
Sample # B1RYR7 100 to 102 ft 100% Recovery

**OPERATOR**: K. Olson
License no. 1580
J. Villareal (OP/CHG); B. Livingston, J. Clayton (HPT/CHG); M. Passey, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic was keeping our minds on the task at hand and inspection of the site during work hiatus. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:30 | 09:15 | Remove center tubing and tip from the outer tubing. |
| 09:15 | 10:30 | Mr. Hulse delivers a sampler. Trip the sampler to depth. Drive a sample (B1RYR7) from 100 to 102 ft bgs and pull from borehole. Sample was drove at 10:30. |
| 10:30 | 11:30 | Trip inner tubing into bore-hole. |
| 11:30 | 12:00 | Set-up dual wall tubing and drive to 104 ft bgs. |
| 12:00 | 12:30 | Lunch |
| ---------- | ---------- | The NCO (Mr. Karl Hulse) packages and transports the sample to the lab. |
| 12:30 | 15:00 | Drive the 2 5/8 tubing to a depth of 118 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |
| ---------- | ---------- | NOTE: Due to the New Year's Day Holiday there will be no field work tomorrow, work will resume 01/02/08. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 39 | **DATE:** 01/02/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: BORE-HOLE WORK IS DOWN DUE TO THE AIR SAMPLERS NEEDING INSPECTED BY ELECTRICIANS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*

C5952A 118 FT BGS

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
9 hr

**WEATHER CONDITIONS** (373-2716)
Temperature 38 F; overcast

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952A @ 118.0 ft bgs |
| Casing depth (shift end) | C5952A @ 118.0 ft bgs |
| Casing stick up (shift end) | |
| Drive String Length | |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson
License no. 1580
J. Villareal (OP/CHG); P. Templeton (HPT/CHG); M. Passey, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook (NCO) to SMURF building for Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic Repetitive work tasks (tripping inner tubing) and shooting auto guns and where the casing goes (a situation happened where the casing hit a person in the eye). HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:30 | ———— | The HPT (Mr. Templeton) picked up and transported the air monitors. The cords need their quarterly inspection by electricians. Personnel set up moisture probes. |
| ———— | 12:00 | The tumbleweeds are picked up around the work location. |
| 12:00 | 12:30 | Lunch |
| 12:30 | ———— | The air samplers cannot be inspected as the electricians are busy with higher priorities. |
| | 15:00 | Personnel look over other equipment that may need calibrated or inspected. Clean-up site and support facilities. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: Kit Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 40 | **DATE:** 01/03/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE AND RETRIEVE SAMPLE, DRIVE TO NEXT SAMPLE DEPTH (140 FT BGS)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 20 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5952A 118 to 140 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 42 F; overcast, snow, hail

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5952A @ 118.0 ft bgs |
| Casing depth (shift end) | C5952A @ 140.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 142.0 ft |

**SAMPLE SUMMARY**

Sample # B1RYR8 118 to 120 ft 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
Reuban (OP/CHG); J. Clayton (HPT/CHG); M. Passey, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | An NCO (Ruban) was assigned to our work. Ruban to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic freezing rain and driving conditions were discussed. ***A weekly safety topic was discussed as follows: Pinch points and smashing hazards – due to the nature of this type of work (drilling and sampling) and methodology (HHU) there are a lot of potential hazards. It is very important to be observant and careful when driving, sampling, or conducting back-pulling operations. Be sure slips and wrenches have clean and sharp jaws and are ini good working order. Do not place fingers, hands or limbs in a position that could cause bodily harm.*** HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:30 | 09:00 | The HPT (Mr. Clayton) picks up the air samplers and set-up on location. |
| 09:00 | 10:07 | Remove center tubing and tip from the outer tubing. |
| 10:07 | 11:10 | Trip the sampler to depth. Drive a sample (B1RYR8) from 118 to 120 ft bgs and pull from borehole. Sample was driven at 10:40. The sampler is on the bank. |
| 11:10 | 11:50 | Set-up the drive tip. Trip inner tubing trip into borehole. |
| 11:50 | 12:05 | Initiate drive to next sample point at 140 ft bgs. Drive to a depth of 126 ft bgs. |
| 12:05 | ---------- | The NCO (Mr. Frank Hall) packages and transports the sample to the lab. |
| ---------- | 12:35 | Lunch |
| 12:35 | | Drive 2 5/8 tubing to a depth of 140 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 41 | **DATE:** 01/04/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CAT<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: TRIP TUBING TO OBTAIN A SAMPLE. RAIN DELAY.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5952A 140 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***
Rain delay – 3.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 36 F; overcast, rain

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5952A @ | 140.0 ft bgs |
| Casing depth (shift end) | C5952A @ | 140.0 ft bgs |
| Casing stick up (shift end) | | 2.0 ft |
| Drive String Length | | 142.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
Izzy (OP/CHG); J. Clayton (HPT/CHG); M. Passey, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Izzy to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic Pinching Hazards. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:30 | 09:38 | Remove center tubing and tip from the outer tubing. |
| 09:38 | 10:50 | Trip tubing with a sampler to depth. |
| --------- | --------- | The rain is coming down. The sampler cannot be driven and pulled due to the rain. |
| --------- | --------- | The generator has maintenance conducted this pm (arranged by NCO). |
| 10:50 | 11:20 | Lunch |
| 11:20 | 15:00 | Personnel conduct site walkdown. Review material/equipment in horse trailer. Inspect power tools. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A/C5957/C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 42 | **DATE:** 01/07/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791 | **START CARD NO:** S27641/A118505 | **RIG MODEL/NO:** Hydraulic Hammer Unit |
| SUBCONTRACT NUMBERC 31672 | **EXCAVATION PERMIT:** DAN3277 | HHU CAT |
| OPERABLE UNIT: 200-BP-5 | (U-Dig Number 7363119) | AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE A SAMPLE, MOVE AND SET-UP ON C5957, DEEPEN BORING TO A DEPTH OF 144 ft bgs. MOVE AND SET-UP ON C5958 AND DRIVE TO A DEPTH OF 3 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 45 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(Include sampling depth)*

C5952A 140 - 142 ft bgs
C5957 104 – 144 ft bgs
C5958 0 – 3 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 39 F; snow then blue skies

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) C5952A @ 140/C5957 @ 104 ft bgs | |
| Casing depth (shift end) C5952A @ 142/C5957 @ 144 ft bgs | |
| Casing stick up (shift end) | 2.0 ft/2.0 ft |
| Drive String Length | 144 ft/146.0 ft |

**SAMPLE SUMMARY**

Sample # B1R4R9 140 to 142 ft 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. Personnel Ace (weekly). The Safety topic is slick conditions and snow. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. Start and warm HHU. |
| 09:00 | 10:10 | Drive a sample (B1R4R9) from 140 to 142 ft bgs and pull from borehole. Sample was drove at 09:15. The sampler is on the bank. Mr. Hall packages and transports the sample to the laboratory. |
| 10:10 | 10:30 | Boring C5952A is secured for additional work. The sample will be evaluated for contamination and a decision made regarding additional sampling. |
| 10:30 | 11:45 | The HHU and support equipment is moved and set-up over C5957. Initiate driving from 104 to a depth of 120 ft bgs. |
| 11:45 | 12:15 | Lunch |
| 12:15 | 14:20 | C5957: Driving tubing from 120 ft bgs to a depth of 144 ft bgs. |
| 14:20 | 14:50 | Move and set-up the HHU and support equipment on C5958. |
| 14:50 | 15:15 | Drive dual wall tubing to a depth of 3 ft bgs. |
| 15:15 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David C. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-5-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 43 | **DATE:** 01/08/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE @ C5958 TO A DEPTH OF 16 FT BGS, OBTAIN SAMPLE AND CONDUCT GEOPHYSICAL GAMMA LOGGING AT C5957.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 13 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 3 – 16 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 34 F; snowing

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 3 ft bgs |
| Casing depth (shift end) | C5958 @ 16 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 18.0 ft |

**SAMPLE SUMMARY**
Sample # B1RYTO 10.5 to 12.5 ft 70% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton (HPT/CHG); B. Randall (NW Geophysics); M. Repko, D. Skoglie (ENERGY SOLUTIONS) B. Randall (NW Geophysics).

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook to SMURF building for Work Package. Conducted Plan-of-the-Day meeting. The Safety topic a lesson's learned bulletin on working to your own training and emergency contact protocol. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. Start and warm HHU. |
| 09:00 | ---------- | Mr. Randall is onsite to conduct Geophysical Gamma logging at C5957 from 141 to 95 ft bgs. |
| ---------- | 10:10 | C5958: Drive tubing to a depth of 10.5 ft bgs. |
| 10:10 | 10:55 | Snow is falling. Due to survey requirements (alpha) tubing cannot be pulled. |
| 10:55 | 11:35 | Pull inner tubing string. Attach a sampler on the inner string and run to depth. |
| 11:35 | 11:40 | Drive a sample (B1RYTO) from 10.5 to 12.5 ft bgs and pull from borehole. Sample was driven at 11:20. The sampler is on the bank. Mr. Hall packages and transports the sample to the laboratory. |
| 11:40 | 11:50 | The inner string is reestablished in the dual string sampling system. |
| 11:50 | 12:10 | Driving continues to a depth of 16 ft bgs. |
| 12:10 | 12:30 | The spindle sub broke loose. Upon evaluation the spindle is broke. Further evaluation will be required and Head repaired. |
| 12:30 | 13:00 | Lunch |
| 13:00 | 14:30 | The Case HHU was moved into position and set-up on C5958. |
| ---------- | ---------- | Mr. Randall completes Moisture logging at C5957 141.5 to 90 ft bgs and repeat 120 to 110 ft bgs. |
| 14:30 | 15:15 | Discuss plan for CAT HHU. |
| 15:15 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David S. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 44 | **DATE:** 01/09/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE @ C5958 TO A DEPTH OF 54 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 38 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 16 – 54 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 35 F; snowing

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 16 ft bgs |
| Casing depth (shift end) | C5958 @ 54 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 56.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton (HPT/CHG); B. Randall (NW Geophysics); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Sharp was assigned to our work today. Rick picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic was suspect/counterfeit rigging hardware. ***A weekly safety meeting was discussed as follows: House-keeping is very important part of work on a day-to-day basis. The work area and support zones whether it is equipment storage or the lunch room shall be clean and organized. Personnel are doing a Good job. Keep your mind in the game.*** HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. Start and warm HHU. |
| ——— | ——— | Mr. Randall is onsite to conduct Geophysical Gamma logging 140.5 to 2 ft bgs repeat 3 times 140 to 2 ft bgs. |
| 09:00 | 09:45 | The CAT drill head was placed on a pallet, secured with banding and loaded on a truck headed for Colorado. |
| 09:45 | 12:00 | C5958: Drive the dual wall sampling system to a depth of 34 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:15 | Awaiting for CH2M Hill personnel to complete inventory of Connex located inside our work location. |
| 13:15 | 15:00 | C5958: Drive the dual wall sampling system to a depth of 54 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David C. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 45 | **DATE:** 01/10/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: OBTAIN SAMPLE @ 54 FT BGS AND DRIVE C5958 TO A DEPTH OF 79 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 25 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 54 – 79 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 35 F; fog/overcast

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 54 ft bgs |
| Casing depth (shift end) | C5958 @ 79 ft bgs |
| Casing stick up (shift end) | 3.0 ft |
| Drive String Length | 82.0 ft |

**SAMPLE SUMMARY**
Sample B1T2P1 54 to 56 ft 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
L Villareal (OP/CHG); J. Clayton (HPT/CHG); B. Randall (NW Geophysics); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:00 | Mr. Villareal picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic was Cold weather and layered clothing. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| ——— | ——— | Mr. Randall is onsite to conduct Geophysical logging @ C5963 Gamma 100 to 2 ft bgs and Moisture 100 to 2 ft bgs repeat 100 to 2 twicw. |
| 08:00 | 08:20 | The HHU will not start. The fuel filter was removed, filled and replaced. The shut down switch was reset. The HHU started and is running. |
| 08:20 | 08:50 | Trip inner tubing and drive point from dual wall sampling system. |
| 08:50 | 09:20 | Trip in a sampler. Drive the sampler from 54 to 56 ft bgs. Sample was driven @ 09:15. |
| 09:20 | 09:50 | The sample was pulled and Mr. Hall packages and transports the sample. |
| 09:50 | 10:25 | Trip in the inner tubing and drive point, set-up for driving the dual wall. |
| 10:25 | 11:30 | C5958: Drive the dual wall sampling system to a depth of 63 ft bgs. |
| 11:30 | 12:00 | Lunch |
| 12:00 | 14:30 | C5958: Drive the dual wall sampling system to a depth of 79 ft bgs. |
| 14:30 | 15:00 | Discuss Case engine operation. The flow check valve or intake fuel line has been discussed and is ruled as the possible engine running problem. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David C. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 46 | **DATE:** 01/14/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT MAINTENANCE ON HHU, READY FOR SAMPLING @ 79 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** -0- ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*

C5958 79 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***

4 hr CASE

**WEATHER CONDITIONS** (373-2716)

Temperature 35 F; fog/overcast

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 79 ft bgs |
| Casing depth (shift end) | C5958 @ 79 ft bgs |
| Casing stick up (shift end) | 3.0 ft |
| Drive String Length | 82.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson

License no. 1580

Izzy (OP/CHG); J. Clayton (HPT/CHG); B. Randall (NW Geophysics); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:00 | Ixxy picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic was Cold weather and layered clothing. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| | | ***A weekly safety meeting was conducted as follows: Hearing protection – 29 CFR Part 1926, Subpart E – Personal Protective and Life Saving equipment, 1926.101 Hearing Protection. The work area has been evaluated for hearing protection and depending on the task at hand will depend on the required hearing protection. Personnel working at the HHU will require two sets of hearing protection when driving tubing Wherever it is not feasible to reduce the noise levels or duration of exposure to those specified in Table D-2, permissible noise exposure, in 1926.52, ear protection devices shall be provided and used. Otherwise one set will be required when operating in the work zone. Reference the appropriate Activity Hazardous Analysis.*** |
| 08:00 | 12:00 | The Case mechanic from Central Machinery is on location to repair Case backhoe. The Fuel line intake line was changed along with the fuel filters. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Trip inner string out of boring. |
| 13:30 | 14:30 | Trip a sampler to a depth of 79 ft bgs. |
| 14:30 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 47 | **DATE:** 01/15/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: OBTAIN SAMPLE @ 79 FT BGS AND DRIVE C5958 TO A DEPTH OF 100 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 21 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 79 – 81 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 35 F; clear skies

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 79 ft bgs |
| Casing depth (shift end) | C5958 @ 100 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 102.0 ft |

**SAMPLE SUMMARY**
Sample B1T2P2 79 to 81 ft 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
Izzy (OP/CHG); J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic was CH2M Hill notifications and vapors. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:00 | 08:30 | Drive the sampler from 79 to 81 ft bgs. Sample was driven @ 08:30. |
| 08:30 | ---------- | The sample was pulled and Mr. Hall packages and transports the sample. |
| ---------- | 09:35 | Trip in the inner tubing and drive point, set-up for driving the dual wall. |
| 09:35 | 11:45 | C5958: Drive the dual wall sampling system to a depth of 100 ft bgs. Initiate back-pulling of inner tubing. |
| 11:45 | 12:15 | Lunch |
| 12:15 | 12:55 | Continue tripping inner string from boring. |
| 12:55 | 15:00 | Trip sampler to depth. Ready equipment for sampling (AM). |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David F. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kd Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 48 | **DATE:** 01/16/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: OBTAIN SAMPLE @ 100 FT BGS AND DRIVE C5958 TO A DEPTH OF 114 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 14 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 100 – 114 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 32 F; clear skies

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 100 ft bgs |
| Casing depth (shift end) | C5958 @ 114 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 116.0 ft |

**SAMPLE SUMMARY**
Sample B1T2P3 100 to 102 ft 75% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie, R. Zane, K. Reynolds (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic was required personal protective equipment (PPE). HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:00 | 08:45 | Warm equipment and set-up to drive sample. The sample was driven at 08:45. |
| 08:45 | ---------- | The sample was pulled and Mr. Hulse packages and transports the sample. |
| ---------- | 09:20 | Trip inner tubing and drive point into boring. |
| 09:20 | 09:50 | Set-up to drive tubing to next sample depth (114 ft bgs). |
| 09:50 | 12:00 | Drive the dual wall sampling system to a depth of 106 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:05 | Drive the dual wall sampling system to a depth of 114 ft bgs. |
| 14:05 | 15:00 | Trip the inner tubing out of the boring. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 49 | **DATE:** 01/17/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: OBTAIN SAMPLES @ 114 AND 116 FT BGS AND REINSTALL INNER TUBING, DRIVE TO 122 FT BGS** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 8 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 114 – 122 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 27 F; partly cloudy

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 114 ft bgs |
| Casing depth (shift end) | C5958 @ 122 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 124.0 ft |

**SAMPLE SUMMARY**

Sample B1T2P4 114 to 116 ft 100% Recovery
Sample B1T2P5 116 to 118 ft 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed related to yesterday's Safety walk-down. Two findings were noted, 1) an extension cord was buried in the snow and a truck drove over the cord (three others had been moved. Yellow-jacket is being located and the cords layed to rest. 2) two extension cords were connected. A longer cord (100 ft) is being located. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:00 | 09:20 | Warm equipment, trip sampler to depth and set-up to drive sample from 114 to 116 ft bgs. The sample was driven at 09:20 hrs. |
| 09:20 | 10:20 | The sample was pulled and Mr. Hall packages and waits for transport until the second sample is packaged. |
| | 11:00 | A clean sampler is run to the 116 ft mark. |
| 11:00 | 11:05 | The sample was drove at 11:05 from 116 to 118 ft bgs. |
| 11:05 | 12:00 | The sample was pulled and Mr. Hall packages and transports the sample. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:50 | Trip inner tubing and drive point into boring. |
| 13:50 | 14:10 | Set-up to drive tubing to next sample depth (134.5 ft bgs). |
| 14:10 | 15:00 | Drive the dual wall sampling system to a depth of 122 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 50 | **DATE:** 01/18/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE TO SAMPLE DEPTH @ 134.5 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 12.5 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 122 – 134.5 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 18 F; overcast

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 122.0 ft bgs |
| Casing depth (shift end) | C5958 @ 134.5 ft bgs |
| Casing stick up (shift end) | 1.5 ft |
| Drive String Length | 136.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:00 | Izzy picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed related to dressing in layered clothing to stay warm and ice and compacted snow in and around the work location. HPT's conduct instrument calibration. Performed site and equipment inspection. No deficiencies noted. |
| 08:00 | 08:30 | Warm equipment and set-up to drive the dual wall sampling string. |
| 08:30 | 11:20 | Drive the tubing to a depth of 134.5 ft bgs. |
| 11:20 | 12:00 | Trip inner tubing and drive point out of the boring. |
| 12:00 | 12:30 | Lunch (Paul's famous BBQ teriyaki chicken). |
| 12:30 | 13:40 | A clean sampler is run to the 134.5 ft mark. |
| 13:40 | 15:00 | Discuss project goals and scope. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958/C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 51 | **DATE:** 01/21/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C5958: DRIVE A SAMPLE @ 134.5 FT BGS AND INITIATE DECOMMISSIONING AT C5952A.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 34 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 134.5 – 136.5 ft bgs
C5952A 142 – 110 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 25 F; clear with winds to 16 mph

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5958 @ 134.5 ft/C5952A 142 ft |
| Casing depth (shift end) | C5958 @ 136.5 ft/C5952A 110.0 ft |
| Casing stick up (shift end) | 1.5 ft/1.4 ft |
| Drive String Length | 136.0 ft/112 ft |

**SAMPLE SUMMARY**
Sample B1T2P6 134.5 – 136.5 ft 100% recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook/Izzy (OP/CHG); P. Templeton (HPT/CHG); M. Repko, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed related to dressing in layered clothing to stay warm and ice and compacted snow in and around the work location. HPT's conduct instrument calibration. Personnel ACE. Tank Farm's Field work is in AOP-017. The site is evaluated for snow and ice. Chains for footwear will be used where snow and ice exist. Performed site and equipment inspection. No deficiencies noted. |
| 08:00 | 09:35 | Warm equipment and set-up to drive the dual wall sampling string to obtain a sample. NCO's have obtained ice melt and are placing in areas that we walk. |
| 09:35 | 09:40 | Drive a sample from a depth of 134.5 to 136.5 ft bgs. Sample number is B1T2P6. |
| 09:40 | 11:10 | Trip sample out of boring. Back-pull a 2 ft section of dual wall tubing from outer string. |
| 11:10 | ———— | An NCO (Mr. Hall) packages and transports the sample to the laboratory. |
| ———— | 12:00 | Move the HHU and support equipment to C5952A for decommissioning. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Back-pull dual wall sampling system's outer tubing and add bentonite (1 sk). Decommissioning was completed to a depth of 110 ft bgs. |
| ———— | ———— | No radiological contamination was noted. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt D. Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5952A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 52 | **DATE:** 01/22/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DECOMMISSIONING AT C5952A.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 110 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5952A 110 – 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 25 F; clear

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 110 ft bgs |
| Casing depth (shift end) | 0.0 ft |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton (HPT/CHG); M. Repko, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 07:45 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed related to sledding and watching where you are going. A weekly safety meeting discussed Stroke and how to recognize symtoms of stroke (remember the first three letters). HPT's conduct instrument calibration. Personnel ACE. The site is evaluated for snow and ice. Chains for footwear will be used where snow and ice exist. Performed site and equipment inspection. No deficiencies noted. |
| | | Mr. Zane is on location to monitor the breathing zone for particulates (bentonite). |
| 07:45 | 10:15 | The PAM cannot be used in temperatures under 14 degrees F. Presently it is 8 degrees F. |
| ——— | ——— | Warm equipment. NCO's have obtained ice melt and are placing in areas that we walk. Most walking area's are ice free presently. |
| 10:15 | 12:30 | Back-pull dual wall sampling system's outer tubing and add bentonite. Decommissioning was completed to a depth of 46 ft. |
| 12:30 | 13:00 | Lunch |
| 13:00 | 15:00 | Back-pull dual wall sampling system's outer tubing and add bentonite. Decommissioning was completed. Utilized 10 sks bentonite crumbles (11 total). |
| ——— | ——— | No radiological contamination was noted. |
| | | Mr. Zane's monitoring results indicate 0.02 mg/m$^3$. TLV is 5.0 mg/m$^3$. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David R. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5957 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 53 | **DATE:** 01/23/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: INITIATE PROBE INSTALLATION AND DECOMMISSIONING AT C5957.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 22 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*

C5957 144 – 122 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 25 F (high); clear

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 144.0 ft bgs |
| Casing depth (shift end) | 122.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 124.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson

License no. 1580

S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed related to cold stress and hypothermia. HPT's conduct instrument calibration. Personnel ACE. The site is evaluated for snow and ice. Chains for footwear will be used where snow and ice exist. Performed site and equipment inspection. The generator will not start. The mechanic was called to evaluate. The batteries were jumped and the generator started. No other deficiencies noted. |
| 09:00 | 09:35 | Move the HHU and support equipment to C5957 for probe placement and decommissioning. |
| 09:35 | 10:15 | The moisture probe was taped in preparation of installation. The PAM cannot be used in temperatures under 14 degrees F. Presently it is 8 degrees F. |
| ---------- | ---------- | Mr. Zane is on location to conduct monitoring of the breathing zone. Monitoring will be in support of bentonite crumbles and silica sand. |
| 10:15 | 10:20 | The temperature has reached 16 degrees F. |
| 10:20 | 12:00 | A tag inside the tubing revealed no soil inside. Back-pull and knock off the tip. The silica sealant being used to seal the tip has made a lot of improvements by keeping soil out of the tubing and knocking off the tip easily. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:00 | Sand and natural fill was placed over the tip to a depth of 143 ft bgs. |
| 13:00 | 13:20 | A moisture probe was placed at a depth of 143 ft bgs. |
| 13:20 | 14:00 | Place sand to a depth of 136 ft bgs and add the saline solution (~4 gallons). |
| 14:00 | 15:00 | The tubing was back-pulled and bentonite crumbles added to a depth of 122 ft bgs. |
| ---------- | ---------- | No radiological contamination was noted. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5957/C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 54 | **DATE:** 01/24/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DECOMMISSIONING AT C5957.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 122 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5957 122 – 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 25 F (high); clear, winds 3 to 13 mph.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 122.0 ft bgs |
| Casing depth (shift end) | 1.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed related to GFCI circuits and testing. ***A weekly safety meeting was conducted as follows: Vehicle safety – Review your company procedures for common sense requirements that will help prevent traffic related death and injuries. All vehicles will be equipped with seatbelts and they will be worn. Vehicle operators must comply with posted speed limits. Every vehicle operator must possess a valid operator's license and is responsible for notifying management if the license is suspended or revoked. Remember to conduct your 360 vehicle inspection prior to operating a vehicle.*** HPT's conduct instrument calibration. The site is evaluated for snow and ice. Chains for footwear will be used where snow and ice exist. Performed site and equipment inspection. The generator will not start. The mechanic was called to evaluate. The battery was replaced on the generator. No other deficiencies noted. |
| ——— | ——— | The PAM cannot be used in temperatures under 14 degrees F. Presently it is 17 degrees F with a wind-chill of 6 degrees F. |
| 08:40 | 10:35 | The temperature has reached 22 with a wind chill of 15 degrees F. |
| 10:35 | 12:00 | Back-pull tubing adding bentonite crumbles. Back-pull to a depth of 62 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:00 | Back-pull tubing adding bentonite crumbles. Back-pull to surface. |
| 14:00 | 14:30 | Move the HHU and support equipment and set-up on C5958. |
| 14:30 | 15:00 | Conduct maintenance on the HHU chain feed system (adjust tension). |
| ——— | ——— | No radiological contamination was noted. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY***: DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY***: KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 55 | **DATE:** 01/31/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DECOMMISSIONING AT C5958.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 12.5 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*

C5958 136.5 – 124 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***

6 hrs (wind)

**WEATHER CONDITIONS** (373-2716)

Temperature 45 F; winds 15 to 25 mph.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 136.5 ft bgs |
| Casing depth (shift end) | 124.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 126.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson

License no. 1580

S. Snook, Izzy (OP/CHG); J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| ---------- | ---------- | NOTE 1: 01/28/08: Due to snow the Hanford site was shut down. 01/29/08: CH2M Hill has a snow day and work packages are not released. Site snow removal and equipment maintenance was conducted. 01/30/08: Personnel are in training, therefore no work was conducted on location. |
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to procedure compliance. HPT's conduct instrument calibration. The site is evaluated for snow and ice. Chains for footwear will be used where snow and ice exist. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. Change out air monitor filter paper. |
| 08:30 | 09:10 | C5958: Back-pull tubing adding bentonite crumbles. Back-pull to a depth of 124 ft bgs. |
| 09:10 | 12:00 | The wind has picked up and proper survey's cannot be conducted. The back-pulling operation is stopped until the wind dies down. Personnel evaluate decommissioning and probe placement operations. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Conduct field and equipment inspection. |
| ---------- | ---------- | NOTE 2: No radiological contamination was noted. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 56 | **DATE:** 02/01/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DECOMMISSIONING AT C5958.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 98 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5958 124 – 26 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 38 F; overcast with rain showers, winds 15 to 25 mph later in the day.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 124 ft bgs |
| Casing depth (shift end) | 26 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 28.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to work ethics and personalities. HPT's conduct instrument calibration. The site is evaluated for snow and ice. Chains for footwear will be used where snow and ice exist. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| ——— | ——— | ***A weekly safety topic was discussed as follows: The sun can cause damage such as blemishes, sun freckles, and can accelerate the skins aging process, including the development of wrinkles. Long-term exposure to the suns rays increases your risk of developing skin cancer. There are actually three types of skin cancers linked to sunlight exposure. Basal cell (most common) and squamous cell carcinomas are usually treatable and can be cured if caught in time. Malignant Melanomia is rarer, but is more likely to be fatal if treatment is delayed. The risk of developing skin cancer increases with the amount of time you spend without protection in the sun and the intensity of the sun's rays to which you are exposed. Intensity is greatest in the summer from 10 am to 2 pm. Reduce your exposure to the sun. Wear protective clothing when you are outside, such as a hat (with brim), long sleeved shirt and long pants. Use protective sun screen with a SPF (skin protective factor) of at least 15.*** |
| 08:30 | 11:00 | C5958: Back-pull tubing adding bentonite crumbles. Back-pull to a depth of 56 ft bgs. The crumbles bridged off. |
| 11:00 | 12:00 | C5958: Back-pull tubing. Back-pull to a depth of 42 ft bgs. The bridge came loose. A Tag revealed adequate crumbles in the boring. Place crumbles to 43 ft bgs. |
| 12:00 | 12:30 | Back-pull tubing adding bentonite crumbles. Back-pull to a depth of 26 ft bgs. |
| 12:30 | 13:00 | The wind has shut down back-pulling operations. Personnel will eat lunch. |
| 13:00 | ——— | The wind is still above limits and proper survey's cannot be conducted. The back-pulling operation is stopped until the wind dies down. Personnel review HHU operations manual. |
| ——— | 15:00 | No radiological contamination was noted. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kit Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5958/C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 57 | **DATE:** 02/04/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DECOMMISSIONING AT C5958, MOVE AND SET-UP ON SAMPLE BORING C5960, INITIATE DRIVING TO SAMPLE DEPTH.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 55 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(Include sampling depth)*

C5958 26 – 0 ft bgs

C5960 0 – 29 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 38 F; overcast with rain showers, winds 15 to 25 mph later in the day.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) C5958 26.0 ft/C5960 0 ft bgs | |
| Casing depth (shift end) C5958 0.0 ft/C5960 29.0 ft bgs | |
| Casing stick up (shift end) | 2.0 |
| Drive String Length | 31.0 ft bgs |

**SAMPLE SUMMARY**

Sample B1T2P7 18 to 20 ft bgs 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Abnormal Operating Procedures. HPT's conduct instrument calibration. Personnel ACE. The site is evaluated for snow and ice. Chains for footwear will be used where snow and ice exist. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | 10:00 | C5958: Back-pull tubing adding bentonite crumbles. Back-pull to a depth of surface. No radiological contamination was noted. |
| 10:00 | 10:30 | Move the HHU and support equipment to C5960 (2 ft NW of C5959). |
| 10:30 | 12:00 | Initiate driving with the Dual Wall Sampling System (DWSS). Drive to a depth of 18 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:00 | Trip inner string to surface. Run a sampler to bottom. |
| 13:00 | 14:40 | Drive a sampler from 18 to 20 ft bgs (time drove 13:00 hrs). Retrieve sample (damp). Mr. Hall packages and will transport tomorrow. |
| 14:40 | 15:00 | Trip inner string to depth. Drive tubing (DWSS) to a depth of 29 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David F. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 58 | **DATE:** 02/05/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVING ON SAMPLE BORING C5960. SAMPLE AND DRIVE TUBING TO 59 Fft bgs.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 30 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*

C5960 29 – 59 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***

Wind: 2 hrs

**WEATHER CONDITIONS** (373-2716)

Temperature 36 F; overcast with winds 15 to 25 mph later in the day.

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5960 | 29 ft bgs |
| Casing depth (shift end) | C5960 | 59 ft bgs |
| Casing stick up (shift end) | | 2.0 ft |
| Drive String Length | | 61.0 ft |

**SAMPLE SUMMARY**

Sample B1T2P8 41.5 to 43.5 ft bgs 90% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to use and maintenance of pipe wrenches. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | 09:15 | C5960: Driving with the Dual Wall Sampling System (DWSS). Drive from 29 ft to a depth of 41.5 ft bgs. |
| 09:10 | 09:40 | Trip inner string to surface. |
| 09:40 | 10:00 | Run a sampler to bottom. |
| 10:00 | 10:30 | Drive a sampler from 41.5 to 43.5 ft bgs (time driven 09:40 hrs). Retrieve sample. Mr. Hall packages and will transport tomorrow. |
| 10:30 | 12:00 | Trip the solid tip to bottom. Drive to a depth of 53 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Drive to a depth of 59 ft bgs. |
| 13:30 | 15:30 | NOTE: Wind has shut down field operations (13:30 hrs). Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 59 | **DATE:** 02/06/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE THE DWSS TO A DEPTH OF 83 OBTAINING A SAMPLE @ 59 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 24 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 59 TO 83 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 41 F; winds to 17 mph.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5960 59.0 ft bgs |
| Casing depth (shift end) | C5960 83.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 85.0 ft |

**SAMPLE SUMMARY**

Sample B1T2P9 59 to 61 ft bgs 100% Recovery

**OPERATOR**: K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:25 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to moving support equipment. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:25 | 09:00 | C5960: Trip the inner tubing string out of the boring. Trip a sampler to depth. |
| 09:00 | 09:20 | Drive a sampler from 59 to 61 ft bgs (time driven 09:20 hrs). |
| 09:20 | 10:10 | Retrieve sample. Mr. Hall packages and will transport. |
| 10:10 | 10:35 | Trip a drive tip and inner string to depth. |
| 10:35 | 12:00 | Drive the Dual Wall Sampling System (DWSS) to a depth of 65 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:15 | Drive the Dual Wall Sampling System (DWSS) to a depth of 83 ft bgs. |
| 14:15 | 15:00 | Trip inner string out of the boring. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY***: DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David F. Skoglie | ***REVIEWED BY***: KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 60** | **DATE:** 02/07/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: HPT SUPPORT HAS BEEN MOVED TO THE SX EXCAVATION WORK** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(Include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Support (HPT) – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 53 F; winds to 10 mph.

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Wind and associated hazards. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| ——— | ——— | ***A weekly safety was conducted as follows: Hand and power tools – 29 CFR 1926 Subpart I, 1926.300 states all hand and power tools whether furnished by the employer of the employee, shall be maintained in safe condition. They shall be equipped with guards when designed to accommodate. Guarding shall meet the requirements as set forth in American National Standards Institute (B15.1-1953)(R1958), Safety code for mechanical Power-Transmission Apparatus.*** |
| 08:30 | ——— | Due to extreme wind (~60mph) the site was eventually shut down (14:30). The wind blew hard enough that driving or tripping tubing could not be conducted. |
| ——— | ——— | The fuel filter was changed out on the Case HHU. |
| ——— | 12:00 | The Case hydraulic system was evaluated/compared with the Cat HHU. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Secure site and equipment. Travel to Meeting in Richland. |
| 14:00 | 15:30 | A meeting was held in town regarding CR vault investigation. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 61 | **DATE:** 02/11/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO HPT SUPPORT (PULLED FOR OTHER WORK)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Resources – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 51 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:35 | Mr. Snook picks up the Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Attention to Detail. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. |
| 08:35 | ---------- | No HPT support due to the excavation being conducted at SX Tank Farm. |
| ---------- | ---------- | Discuss weather cover for HHU. |
| ---------- | 12:00 | Clean tubing threads. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Clean tubing threads. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 62** | **DATE:** 02/12/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO HPT SUPPORT (PULLED FOR OTHER WORK)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Resources – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 52 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Back Pain. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | ---------- | No HPT support due to the excavation being conducted at SX Tank Farm. |
| ---------- | 12:00 | Clean tubing threads. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Clean tubing threads |
| 15:00 | 15:30 | Secure the site and equipment. |
| | | |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 63 | **DATE:** 02/13/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO HPT SUPPORT (PULLED FOR OTHER WORK)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Resources – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 58 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Staying Fit. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:40 | ———— | No HPT support due to the excavation being conducted at SX Tank Farm. |
| ———— | ———— | Personnel discuss HHU hydraulics. |
| ———— | 12:00 | Clean tubing threads. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Clean tubing Threads fore upcoming work. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY***: DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David C. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 64** | **DATE:** 02/14/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO HPT SUPPORT (PULLED FOR OTHER WORK)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Resources – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 53 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Training HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | ---------- | ***A weekly safety meeting was discussed as follows: Hearing loss – or noise induced hearing loss is caused by exposure to excessive and is always irreversible. The good news is this type of hearing loss is preventable. Prevention requires your constant diligence, it may not be easy but it's worth the effort. You play a vital role in preventing loss by always wearing you hearing protectors and always wearing them correctly. Our Health and Safety person provides a valuable role in preventing your hearing loss. They access the noise in the work area or assess your personal noise exposure. The one thing they cannot do is wear your hearing protection for you. It's your responsibility!*** |
| ---------- | ---------- | No HPT support due to the excavation being conducted at SX Tank Farm. |
| ---------- | 12:00 | Conduct tubing thread cleaning. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Conduct tubing thread cleaning. |
| 15:00 | 15:30 | Secure site and equipment. |
| | | |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kevin Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 65 | **DATE:** 02/15/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO HPT SUPPORT (PULLED FOR OTHER WORK)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***
Resources – 8 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 55 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Biological Hazards. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. |
| 08:40 | ———— | No HPT support due to the excavation being conducted at SX Tank Farm. |
| ———— | ———— | Tumble weed crew picks up weeds. |
| ———— | ———— | General clean-up. Rigging personnel inspect hardware. |
| ———— | 12:00 | Clean tubing threads. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:00 | Clean tubing threads |
| 14:00 | 14:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 66** | **DATE:** 02/19/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO HPT SUPPORT (PULLED FOR OTHER WORK)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*

C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***

Resources – 9 hrs

**WEATHER CONDITIONS** (373-2716)

Temperature 53 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson

License no. 1580

S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Excavations. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | ---------- | No HPT support due to the excavation being conducted at SX Tank Farm. |
| ---------- | ---------- | General Cleanup. |
| ---------- | 12:00 | Clean tubing threads. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Clean tubing threads. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-18-08
SIGNATURE: Kat Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 67 | **DATE:** 02/20/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO HPT SUPPORT (PULLED FOR OTHER WORK)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Resources – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 54 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:50 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Perception. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. |
| 08:50 | ---------- | No HPT support due to the excavation being conducted at SX Tank Farm. Personnel clean-up support trailers. |
| ---------- | 12:00 | Electricians need to inspect electrical components. |
| 12:00 | 12:30 | Lunch |
| 12:30 | ---------- | Clean up green hut. |
| ---------- | 15:00 | General clean-up of site. |
| 15:00 | 15:30 | Secure and site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 68** | **DATE:** 02/21/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO CH2M HILL RESOURCES** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
9 hrs - Support

**WEATHER CONDITIONS** (373-2716)
Temperature 61 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to leather gloves. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| ------- | ---------- | ***A weekly safety meeting was conducted as follows: CH2M Hill has an AOP (Abnormal Operating Procedure) when wind and dust exceed predetermined levels. The use of goggles and/or dust masks may be necessary. Under extreme conditions taking cover or even site closure may be conducted. Avoid breathing wind blown dust.*** |
| ------- | 12:00 | No HPT support due to the excavation being conducted at SX Tank Farm. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:00 | Haul the angle bracket and support equipment to the UPR-86 support zone. Clean threads on the tubing. |
| 14:00 | 15:00 | Carpenter's repair driller's door (auto shut devive) and place a dead-bolt on the exit that is not in use. |
| 15:00 | 15:30 | Secure site and equipment. |
| | | |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-22-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 69 | **DATE:** 02/25/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: INSTALL SURFACE PROTECTION AT C5947, C5943 AND C5957.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 52 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook picks up the Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to pinching Hazards. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:40 | 09:30 | Gather materials for flush mount surface protection. |
| 09:30 | 12:00 | Electricians inspected electrical system. Inventory the chemicals and MSDS's for the work location. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Install a sampler to 83 ft bgs (C5960). |
| 13:30 | 14:10 | Move tubing to drive location for next sample interval. |
| 14:10 | 15:00 | Cement flush mounts in place. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David R. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 70** | **DATE:** 02/26/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: OBTAIN A SAMPLE @ 83 FT AND DRIVE O NEXT SAMPLE LOCATION (98 FT BGS)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 15 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 83 to 98 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 51 F

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5960 83 ft bgs |
| Casing depth (shift end) | C5960 98 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 100.0 ft |

**SAMPLE SUMMARY**
Sample B1T2R0 83 to 85 ft bgs 100% Recovery

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:25 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Hearing Protection. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:25 | 10:05 | Set-up and drive a sample from 83 to 85 ft bgs (09:20 hrs). Trip the sampler to surface. The NCO packaged and transported the sample to the laboratory. |
| 10:05 | 10:35 | Trip a solid tip to bottom and secure. |
| 10:35 | 12:00 | Drive to a depth of 90 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:20 | Drive the Dual Wall Sampling System (DWSS) to a depth of 98 ft bgs. |
| 13:20 | 13:55 | Trip the inner drive tip to surface. |
| 13:55 | 14:30 | Trip a sampler to bottom. |
| 14:30 | 15:00 | Identification tags for the surface protection were fabricated at the Riggers loft and installed on the surface protection. |
| 15:00 | 15:30 | Secure the site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David F. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kevin Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 71** | **DATE:** 02/27/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: OBTAIN A SAMPLE (98 TO 100 FT) AND DRIVE TO NEXT SAMPLE DEPTH** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 17 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 98 to 115.0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
0.5 hr Thunderstorm

**WEATHER CONDITIONS** (373-2716)
Temperature 56 F

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5960 98 ft bgs |
| Casing depth (shift end) | C5960 117 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 119.0 ft |

**SAMPLE SUMMARY**
Sample B1TNK6 98 to 100 ft bgs 100% Recovery

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:40 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Abnormal Operating Procedures. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:40 | 10:44 | Drive a sampler from 98 ft to 100 ft bgs. |
| 10:44 | 11:30 | Trip sampler to surface. The NCO packaged and transported to the laboratory. |
| 11:30 | 12:00 | Thunderstorm hits within 5 miles. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:25 | Trip the inner string to depth. |
| 13:25 | 15:00 | Drive tubing to a depth of 115 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David C. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 72 | **DATE:** 02/28/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: OBTAIN A SAMPLE @ 115 AND 117 FT BGS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 4 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 119 to 121 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 52 F

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5960 115 ft bgs |
| Casing depth (shift end) | C5960 119 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 121.0 ft |

**SAMPLE SUMMARY**

Sample B1TNK7 115 to 117 ft bgs 100% Recovery
Sample B1TNK8 117 to 119 ft bgs 100% Recovery

**OPERATOR**: K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:45 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Eye protection. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:45 | 12:00 | Drive a sample from 115 to 117 ft. Sample number B1TNK7. 100% Recovery. Trip from bore-hole where an NCO packages and transports to laboratory. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:15 | Trip a sampler to depth. Drive a sample from 117 to 119 ft bgs. B1TNK8. 100% Recovery. Trip from bore-hole where an NCO packages and transports to laboratory. |
| 14:15 | 15:00 | Install inner tubing with solid tip for bore-hole advancement. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY***: DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 73 | **DATE:** 02/29/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DRIVE FROM 119 TO A DEPTH OF 138 FT BGS AND TRIP SAMPLER TO DEPTH** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 19 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 119 to 138 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 54 F

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 119.0 ft bgs |
| Casing depth (shift end) | 138.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 140.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Ergonomics. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | ——— | ***A weekly safety meeting was conducted as follows: Ergonomics – repetitive motion can cause injury to personnel. Use good posture and don't over-work muscles and tendons. If problems are identified contact your safety officer and your work tasks will be evaluated for associated problems.*** |
| ——— | 12:00 | Drive the DWSS from a depth of 119 to 138 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:10 | Pull the inner tubing from DWSS. |
| 13:10 | 13:50 | Trip a sampler to depth. |
| 13:50 | 15:00 | Prepare a moisture probe for upcoming installation. |
| 15:00 | 15:30 | Secure the site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David C. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960/C5963 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 74 | **DATE:** 03/03/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C5960: SAMPLE 138 TO 140 FT BGS INSTALL MOISTURE PROBE AT C5963.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 2 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 138 to 140 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 54 F

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 138 ft bgs |
| Casing depth (shift end) | 140 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 140.0 ft |

**SAMPLE SUMMARY**
Sample B1TNK9 138 to 140 ft bgs 100% Recovery

**OPERATOR:** K. Olson
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Eye Safety. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | 12:00 | Drive and collect a sample @ C5960 (138 to 140 ft bgs). Sample had 100% recovery. The NCO (sampler) packages and transports the sample to the laboratory. |
| ——— | ——— | NOTE: The drive tubing will remain in the ground until the last sample is evaluated for radiological contamination. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:10 | Move and set-up on C5963. |
| 13:10 | 14:00 | Back-pull to a depth of 100 ft bgs. Knock-out tip. Place sand to a depth of 100 ft bgs. Back-pull to a depth of 93 ft bgs. Install a probe at 95 ft bgs. Add sand to a depth of 94 ft bgs. |
| 14:00 | 14:20 | Back-pull to a depth of 88 ft bgs. Place silica sand to a depth of 89 ft bgs. |
| 14:20 | 15:00 | Conduct back-pulling and decommissioning with bentonite crumbles to a depth of 82 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5963 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 75 | **DATE:** 03/04/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WIND.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5963 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Wind – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 51 F; winds to 25 mph.

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained HHU inspections. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | 12:00 | No bore-hole work today due to wind (AOP-008). Personnel conduct clean-up activities. |
| 12:00 | 12:30 | Lunch |
| 12:30 | ---------- | Personnel conduct maintenance and inventory of bentonite products. |
| ---------- | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David F. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [illegible]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5963/C5955 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 76 | **DATE:** 03/05/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DECOMMISSIONING @ C5963 AND INITIATE DECOMMISSIONING @ c5955.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 98 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*

C5963 82 to 0 ft bgs

C5955 104 to 88 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 54 f; clear skies

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5963 82 ft/C5955 104 ft |
| Casing depth (shift end) | C5963 0 ft/C5955 88 ft |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 90.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, R. Zane (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Biological Hazards. HPT's conduct instrument calibration. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. HPT's conduct meeting at the SMURF (related to construction support). |
| 08:30 | ——— | C5963: Conduct back-pulling and decommissioning operations to a depth of 74 ft bgs. |
| ——— | ——— | A Take Cover drill was initiated by CH2M Hill in 200 East, however we did not take part other than verifying we were not part of the drill. |
| ——— | 12:00 | C5963: Back-pull tubing and decommission bore-hole to a depth of 1 ft bgs. Utilized 6.5 sks bentonite crumbles. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:10 | Move the HHU and support equipment to C5955. |
| 13:10 | 15:00 | Initiate decommissioning activities from 104 to a depth of 88 ft bgs. |
| 15:00 | 15:30 | Secure equipment and site. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David R. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-22-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5955 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 77 | **DATE:** 03/06/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: RADCO AIR SAMPLERS ARE PULLED FOR INSPECTION.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5955 82 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
9 hrs – Radco air monitors

**WEATHER CONDITIONS** (373-2716)
Temperature 54 f; clear skies

**CASING DRIVING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie, (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 09:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Hard toed boots. Performed site and equipment inspection. No other deficiencies noted. HPT's discuss air monitors inspection with electricians. |
| 09:30 | 12:00 | An unscheduled electrical inspection of the Radco air monitors will need to be conducted. The units (3) were transported to the electrical shop for inspection. Personnel work on site inventory and organization. |
| 12:00 | 12:30 | Lunch |
| 12:30 | ——— | The air monitors may not be inspected today. Personnel work on equipment maintenance. |
| ——— | 15:30 | Conduct maintenance and site cleanup activities. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5955/C5953 | **WELL NUMBER:** N/A | **REPORT NUMBER: 78** | **DATE:** 03/10/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DECOMMISSIONING @ C5955 AND INITIATE DECOMMISSIONING @ C5953** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 118 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*

C5955 82 to 0 ft bgs

C5953 104 to 68 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 62 F, overcast

**CASING DRIVING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5955 82 ft/C5953 104.0 ft bgs |
| Casing depth (shift end) | C5955 0 ft/C5953 68.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 70.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** D. Skoglie
License no. 1580
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to appropriate tool use. HPT's conduct instrument calibration. Personnel ACE. Performed site and equipment inspection. No other deficiencies noted. Warm equipment. |
| 08:30 | ---------- | C5955: Conduct back-pulling and decommissioning operations. |
| ---------- | 12:00 | Decommission to surface. Utilize 6.4 sks bentonite crumbles. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:15 | Move HHU and support equipment to C5953 and set-up. |
| 13:15 | ---------- | C5953: Initiate decommissioning and back-pulling operations. |
| ---------- | 15:00 | Decommission to a depth of 68 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David C. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5953 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 79 | **DATE:** 03/11/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WNID (AOP-008)** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 0 ft**

**CONSTRUCTION DESCRIPTION: N/A**

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5953 68 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME**: 9 Hrs.

***DOCUMENTED DOWNTIME:***
9 hrs due to wind

**WEATHER CONDITIONS** (373-2716)
Temperature 63 f, Wind >20 mph

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 68.0 ft bgs |
| Casing depth (shift end) | 68.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Passey, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 09:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Securing support trailers. A door was found open on the geologist trailer (AM). ***A weekly safety meeting was held as follows: Take Cover – A Emergency Notification and Preparedness contact and direction sheet is posted on the notification board in the driller's trailer. Prior to beginning work determine where the most appropriate building is located that you could go in the event of a take cover emergency. Ensure you have a communication device with you before leaving for the job. Know where you are going before the emergency occurs. If you need assistance any time during this process dial 911 or 373-3800. When the take cover alert is sounded, go to the appropriate building, close windows and shut down the ventilation. Do not leave the site until you are accounted for and released.*** Performed site and equipment inspection. Due to the wind secure any items that may blow away in the wind. No other deficiencies noted. |
| 09:30 | 12:00 | Review the MSDS's and project chemicals. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:20 | Round up materials to fabricate a knocker bar. |
| 14:20 | 15:00 | Conduct site walkdown. |
| 15:00 | 15:30 | Secure site and equipment. |
| | | |
| | | |

***REPORT BY***: DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5953/C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 80** | **DATE:** 03/12/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DECOMMISSIONING @ C5953 AND INITIATE DECOMMISSIONING AT C5980** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 68 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5953 68 to 0 ft bgs
C5960 140 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR** TIME: 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Take Cover exercise 2.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 58 f; overcast

**CASING SUMMARY**

| | | |
|---|---|---|
| Casing depth (shift start) | C5953 | 68.0 ft bgs |
| Casing depth (shift end) | | 0.0 ft bgs |
| Casing stick up (shift end) | | N/A |
| Drive String Length | | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Blowing sand and PPE. No other deficiencies noted. |
| 09:00 | ———— | Review the MSDS's and project chemicals. |
| ———— | 09:30 | A QA/Safety audit was performed on the UPR-86 project. Ms. S. Myers and Mr. Mark Hartney performed the audit. Findings will be evaluated and corrected. |
| 09:30 | 12:00 | During the QA/Safety audit a Take Cover exercise was conducted. This exercise lasted from 09:30 to 12:00. |
| ———— | ———— | Mr. Hartney also conducted a weekly safety walk-down. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:20 | C5953: Conduct tubing back-pulling operations and well decommissioning to surface. Utilized 6.6 sks bentonite crumbles (total). |
| 14:20 | 15:00 | Move the HHU and support equipment was moved to C5960. Set-up the HHU. |
| 15:00 | 15:30 | Secure the site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David L. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt R Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 81** | **DATE:** 03/13/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING @ C5960** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 0 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 104 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Rain – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 56 f; overcast/rain

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Ehrgott, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to MSDS's. The HPT's perform equipment calibration. An equipment and site inspection was conducted. No deficiencies noted. Work on hold due to rain per HPT's. |
| 09:00 | 11:15 | Work on chemical inventory at job site and chemical storage unit. Check MSDS for chemicals on site and work on hazard chemical list. |
| 11:15 | 12:30 | Mike Dorsey on site to shoot in Borehole locations and Elevations, ES crew supported this task. |
| 12:00 | 12:30 | Lunch. |
| 12:30 | ---------- | Work still on hold due to rain per HPT. Make sure items exposed to weather are still covered with plastic. |
| ---------- | ---------- | Load up fuel fired heaters and boxes not needed on location and take to Green hut for storage. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 | **WELL NUMBER:** N/A | **REPORT NUMBER: 82** | **DATE:** 03/14/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING @ C5960** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level (140' bgs )

**TOTAL SHIFT FOOTAGE: -80 ft-**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 104 to 60 ft bgs

**START TIME:** 06:00
**END TIME:** 14:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Wind – 2.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 56 f; overcast/rain

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 140.0 ft bgs |
| Casing depth (shift end) | 60.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); P. Templeton (HPT/CHG); M. Repko, M. Ehrgott, (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to MSDS's. The HPT's perform equipment calibration. An equipment and site inspection was conducted. No other deficiencies noted. |
| 08:30 | 12:00 | C5960: Initiate back-pulling and decommissioning activities from 140' bgs to 60' bgs. |
| ——— | ---------- | H. Sydnor and M.Gardner on site to inventory site equipment. |
| 12:00 | 12:30 | Lunch |
| 12:30 | ---------- | HPT arrived back on site later due to meeting with his management. Did not resume back-pulling and decommissioning activities due to wind 17 mph gust to 25 mph. |
| ---------- | 13:50 | J. Autin and K. Reynolds on site to deliver parts. Personnel conduct trailer clean-up and organization. |
| 14:00 | 14:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5960 / C5959 | **WELL NUMBER:** N/A | **REPORT NUMBER: 83** | **DATE:** 03/17/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DECOMMISSIONING @ C5960. C5959 INITIATE MOISTURE PROBE INSTALLATION & DECOMMISSIONING** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 76 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5960 60 to 0 ft bgs
C5959 104 to 88 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 50 f; partly cloudy, slight wind

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | C5960 60 ft/C5959 104 ft bgs |
| Casing depth (shift end) | C5960 0.0 ft/ C5959 88 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 90.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); J. Clayton (HPT/CHG); M. Repko, M. Ehrgott, (ENERGY SOLUTIONS)

| TIME FROM | TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Drug use. The HPT's perform equipment calibration. An equipment and site inspection was conducted. No other deficiencies noted. |
| 08:50 | 11:30 | C5960: Back-pulling and decommissioning completed from 60' bgs ( 3 sks of Bentonite used ) total of 7 sks used. |
| 08:50 | 13:10 | M. Ehrgott Left site for Physical at AMH. |
| 11:30 | 12:00 | Tape up moisture probe For C5959 |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:45 | Move and set-up on C5959, Initiate back-pulling from 104' bgs. Knock-out tip and Place sand to 97.5' bgs install moisture probe and sand to 90.0' bgs add ~ 4 gal of saline solution. 16' was back-pulled (4 rod) to 88.0' bgs. Need to let dry before installing bentonite. |
| ——— | ——— | Crew left site for Chemical storage to pickup more sacks of Bentonite. |
| 15:00 | 15:30 | Secure site and equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5959 | **WELL NUMBER:** N/A | **REPORT NUMBER: 84** | **DATE:** 03/18/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DECOMMISSIONING @ C5959** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 88 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5959 88 to 0 ft bgs

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 40 f; partly cloudy, slight wind

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG);P. Templeton, J. Clayton (HPT/CHG); M. Repko, M. Ehrgott, (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to proper ventilation when using paints & thinners. The HPT's perform equipment calibration. An equipment and site inspection was conducted. No other deficiencies noted. |
| 08:50 | 12:00 | C5959: Continue Back-pulling and decommissioning from 88' bgs. |
| 09:45 | 10:45 | CHG Dave Meyers on site. |
| 12:00 | 12:30 | Lunch |
| 12:45 | 14:00 | Continue Back-pulling and decommissioning from 25' bgs to Ground Surface (G. S.). Used 6 sks Bentonite. |
| 14:00 | 15:00 | Crew leaving site for Chemical Storage Unit to pickup Cement and jugs of water to support installation of completion caps. Wind starting to pick up 15 to 20 mph gust 25 to 30 mph per Hanford weather station. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C5959 / 5963 | **WELL NUMBER:** N/A | **REPORT NUMBER: 85** | **DATE:** 03/19/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: @ C5959/ 5963 INSTALL SURFACE PROTECTION BARRIERS.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 0 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C5953 68 ft bgs
C5980

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 40 f; overcast chance of rain.

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); J. Clayton (HPT/CHG); M. Repko, M. Ehrgott, (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 09:00 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to securing loads and chocking pipes. The HPT's perform equipment calibration. An equipment and site inspection was conducted. No other deficiencies noted. A weekly safety meeting was conducted (PHMC lessons learned) Inadequate safety Practices Cause Sever Injury. *Summary: While unloading well casings from a truck, a worker's foot was struck by an extremely heavy well casing. Organizations with strong safety standards and expectations must coach and mentor those practices for less prepared organizations. Doing so raises the safety bar for everyone. All personnel; management and workers, must maintain situational awareness of the hazards around them and look out for the safety of their team and themselves.* |
| 09:00 | 10:00 | C5959 / C5963: Install surface protection barriers. Restage Rig # 2 for service. |
| 10:00 | 12:00 | Cleanup site and band drill rod to pallets and restage in lay down area. Need to clean threads on some tubing before placing on pallets and banding. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Continue with cleanup activities. Work on servicing Rig # 2 changed motor oil & filter @ 2730.7 hrs. |
| 15:00 | 15:30 | Secure site and equipment |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER: 86** | **DATE:** 03/20/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBERC 31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: SITE CLEANUP, CLEAN TUBING THREADS, SERVICE RIG # 1, WORK ON MSDS BOOK** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 0 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(Include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 45 f; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, Izzy (OP/CHG); M. Young (HPT/CHG); M. Repko, M. Ehrgott, (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:20 | Mr. Snook picks up the Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to pinch points when cleaning threads on tubing and working on drill Rig # 1. The HPT's perform equipment calibration. An equipment and site inspection was conducted. No other deficiencies noted |
| 07:30 | 09:45 | Perform house keeping in lunch trailer, horse trailer, and work site. Set up boundary around drill rod storage. |
| 08:30 | 09:30 | HPT M. Young performed a (post) ground surface survey of Borehole work areas. |
| 09:45 | 10:30 | Crew leaving site for Chemical storage unit to pickup items for Hydraulic fluid change. Dropping off parts at Green hut for storage. |
| 10:30 | 12:00 | Changed out hydraulic fluid & filter. Crew taking used oil back to chemical storage unit and dump in waste oil drum. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Work on removing guide from mast for inspection. Crew dropping off parts at ENW lay down yard. |
| 15:00 | 15:30 | Secure site and Equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 3-28-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 87 | **DATE:** 03/24/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER C31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: SITE CLEANUP AND CONDUCT MAINTENANCE ON HHU** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 51 f; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, I. Villarell (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:20 | No Work Package is picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to adequate sleep. An equipment and site inspection was conducted. No deficiencies noted |
| 08:20 | 10:00 | Prepared a drawing for the HHU head guide. |
| 10:00 | 12:00 | Haul equipment to Energy NorthWest. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Travel to rigging loft and had tags made for surface protection moisture probe installations. |
| 13:30 | 14:00 | Installed tags on surface protection. |
| 14:00 | 15:00 | Repaired lights on the backhoe (Case). |
| 15:00 | 15:30 | Secure site and Equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-26-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER: 88** | **DATE:** 03/25/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER C31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: HHU MAINTENANCE AND CLEAN THREADS ON TUBING.** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 0 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 53 f; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1217
N/A (OP/CHG); N/A (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| TIME FROM | TIME TO | |
|---|---|---|
| 06:00 | 08:30 | No Work Package is picked up. HPT/NCO's were assigned other work (S Tank Farm cleanup). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Sprouted Potatoes. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 09:20 | Installed guide on the HHU mast. |
| 09:20 | 12:00 | Clean tubing threads. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Continue cleaning threads on the tubing. |
| ——— | ——— | Mr. Zane conducts a weekly walk-down. No deficiencies were noted. |
| 15:00 | 15:30 | Secure site and Equipment. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: David F. Skoglie

***REVIEWED BY***: KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08
SIGNATURE: [illegible]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 89 | **DATE:** 03/26/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER C31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT HHU CLEANING** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH** *(include sampling depth)*: N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 51 f; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 0.0 ft bgs |
| Casing depth (shift end) | 0.0 ft bgs |
| Casing stick up (shift end) | N/A |
| Drive String Length | N/A |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, I. Villareil (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | No Work Package picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to CH2M Hill Lock and Tag. ***A weekly safety meeting was conducted. The topic was rest. Researchers have found a link between sleep deprivation, anger, anxiety and depression. During studies conducted at the University of Pennsylvania people felt significantly more angry, stressed and sad with 4.5 hours of sleep. Because of the hormones generated during sleep, chronic sleeplessness can have a negative effect on one's health. Doctor's have noted a link between lack of sleep and low levels of leptin. A 1999 study by the University of Chicago showed that a sleep deficit of even three or four hours over a week affects the body's ability to process carbohydrates and insulin, potentially resulting in a pre-diabetic state. Studies have shown that sleep deprivation has an effect on hand-eye coordination that can be as severe as that of intoxication. Sleep is the foundation of a healthy mind and body.*** An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | ---------- | A new technical basis document for Alpha surveys (TWR-4675) was reviewed by onsite personnel. The updated version will be released the week of April 3rd. |
| ---------- | 12:00 | Initiate hand wiping the HHU and back-hoe to meet the alpha survey requirements. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:30 | Hand wiping the HHU and back-hoe to meet the alpha survey requirements. |
| 15:00 | 15:30 | Secure site and Equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 5-28-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

**Energy Solutions Inc. Western Operations**

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

| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER: 90** | **DATE:** 03/27/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER C31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27641/A118505<br>**EXCAVATION PERMIT:** DAN3277<br>(U-Dig Number 7363119) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-07-007-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT HHU CLEANING** | **REFERENCE:** FSWO-DOW-024<br>RWP: CO-362, Rev 6 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 0 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | SET-AT DEPTH | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 3.0 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
N/A

**START TIME:** 06:00
**END TIME:** 15:30
**CONTRACTOR TIME:** 0.5
**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
N/A

**WEATHER CONDITIONS** (373-2716)
Temperature 56 f; partly sunny

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, I. Villareil (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:30 | No Work Package picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Chain Binders. An equipment and site inspection was conducted. No deficiencies noted |
| ---------- | 12:00 | Conduct hand wiping the HHU and back-hoe to meet the alpha survey requirements. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Hand wiping the HHU and back-hoe to meet the alpha survey requirements. |
| ---------- | ---------- | NOTE 1: Personnel will be in a Washington Groundwater training class tomorrow supporting drillers licenses. |
| 15:00 | 15:30 | Secure site and Equipment. This is the last report for this task. |

***REPORT BY:*** DE Skoglie
TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE
SIGNATURE: D. E. Skoglie

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 5/28/08
SIGNATURE: D. E. Skoglie for

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# APPENDIX E

# GEOPHYSICAL LOGS AND REPORTS

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# SMALL DIAMETER GEOPHYSICAL LOGGING FOR UPR-200-E-86 BY 241-C TANK FARM

by

Russel Randall, PhD and Randall Price

to

Energy*Solutions* Federal Services, Inc.
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Richland, Washington 99354

April 2008

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## CONTENTS

1.0 INTRODUCTION ..... 1
2.0 GAMMA AND MOISTURE SURVEYS ..... 2
2.1 GROSS GAMMA CALIBRATION AND SURVEYS ..... 3
2.2 NEUTRON MOISTURE CALIBRATION AND SURVEYS ..... 4
3.0 GYROSCOPE BOREHOLE DEVIATION SURVEY ..... 5
4.0 CONCLUSION ..... 11
5.0 REFERENCES ..... 12

APPENDIX A GAMMA AND MOISTURE SURVEY RESULTS ..... A-1

## LIST OF FIGURES

Figure 1. Push Hole Locations at UPR-200-E-86 by 241-C Tank Farm. ..... 2
Figure 2. Gross Gamma Calibration Certificate (Equivalent Radium-226). ..... 7
Figure 3. Gross Gamma Calibration Certificate (Equivalent Cesium-137) ..... 8
Figure 4. Moisture Calibration Certificate, Hole size: 6 in. and 8 in. ..... 9
Figure 5. Moisture Calibration Certificate, Hole size 2.5 in. ..... 10

## LIST OF TABLES

Table 1. Gross Gamma Calibration Data. ..... 3
Table 2. Moisture Calibration Data. ..... 5
Table 3. Gyroscope Survey Results for C5947. ..... 11

## TERMS

| | |
|---|---|
| DOE | U.S. Department of Energy |
| Energy*Solutions* | Energy*Solutions* Federal Services, Inc. |
| HPGe | high-purity germanium |
| OD | outside diameter |
| PNG | Pacific Northwest Geophysics |

# SMALL DIAMETER GEOPHYSICAL LOGGING FOR UPR-200-E-86 BY 241-C TANK FARM

## 1.0 INTRODUCTION

Pacific Northwest Geophysics (PNG) and Three Rivers Scientific provided small diameter (slim hole) logging at the cesium spill pile (UPR-200-E-86) near the 241-C Tank Farm. This logging investigated the extent of subsurface contamination. Logging surveys were conducted in nine probeholes with a sodium-iodide (NaI) scintillation gross gamma detector and a neutron-neutron moisture probe. The surveys identified zones of interest for sample collection and laboratory analysis. A gyroscope survey was acquired in the deep (60.96 m [200-ft]) probehole C5947. This report includes the survey results for each of the nine probeholes installed for geophysical logging at the investigation site, as well as the results of the single gyroscope survey of C5947 (see Appendix A).

The NaI gross gamma detector was calibrated for the probehole conditions present at the investigation site. The calibration unit of equivalent radium-226 (Ra-226) (eRa-226 pCi/g) is used for background levels of the natural radionuclides. The calibration unit of equivalent cesium-137 (Cs-137) (eCs-137 pCi/g) is used for zones of elevated gamma activity (see Section 2.1).

The objective of the gamma survey logs was to identify depth intervals with elevated gamma activity (i.e., eCs-137 concentrations greater than 10 pCi/g). Rapid scan gamma surveys (1.23 m/min [4 ft/min]) have a minimum detection threshold of 8 pCi/g for Cs-137.

Elevated gamma activity was detected in only one of the project's probeholes, C5959. The gamma activity in this probehole was significant with a maximum eCs-137 concentration of 40,000 pCi/g, also the log response indicated that the contamination interval was a thin zone.

The moisture content in the nine probeholes ranged from about 5 to over 20 percent volume fraction (% vf) moisture. This was determined using the neutron moisture detector that measures the distribution of hydrogen (moisture) in subsurface soils. Calibration of this detector is discussed in Section 2.2.

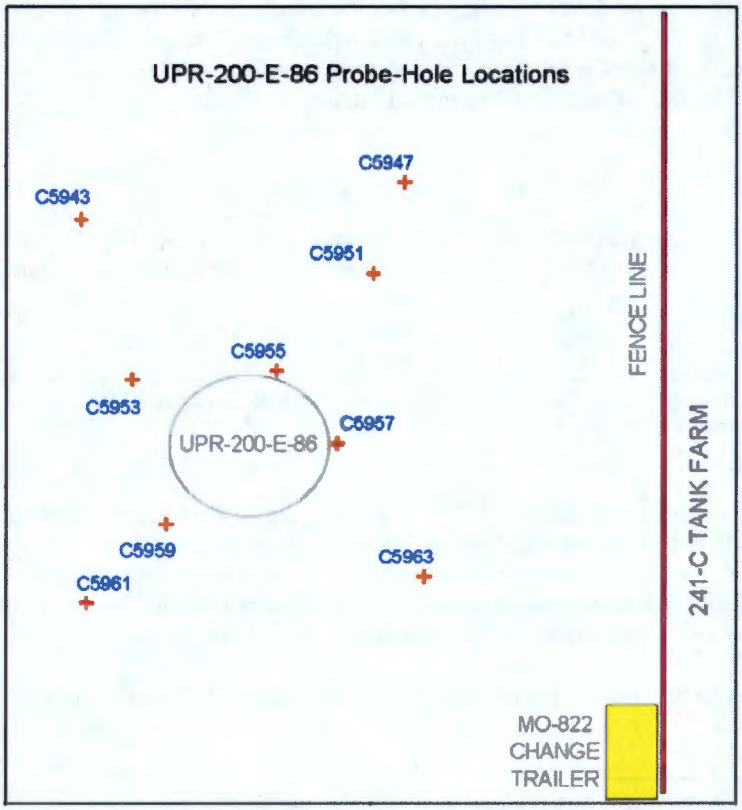
The gyroscope survey data was acquired as a system check and to assess how the deep probehole deviated from vertical. Discussions of the gyro equipment, data processing, and survey results are presented in Section 3.0.

## 2.0 GAMMA AND MOISTURE SURVEYS

The gamma and moisture logging surveys were recorded from the bottom of the probehole (maximum survey depth) to the ground surface. Zero depth reference is at the ground surface. A repeat measurement was acquired daily in at least one probehole to verify instrument repeatability. The main log and repeat intervals are presented on the same plot. The computed results of the main and repeat intervals were reviewed. For all of the repeat intervals collected, the results agree within the uncertainty of the measurement counting statistics.

The survey results for each probehole are presented as a depth versus concentration plot in Appendix A. The plots are in numeric order of the probeholes (C5943 – C5963). Appendix A also contains a table summarizing each probehole in this way: detectors used, probehole depth, depth of maximum gamma activity, and maximum concentration of eCs-137 in pCi/g. Figure 1 shows a graphic view of the probehole locations.

Figure 1. Push Hole Locations at UPR-200-E-86 by 241-C Tank Farm.



## 2.1 GROSS GAMMA CALIBRATION AND SURVEYS

The gross gamma scintillation detector uses a NaI crystal. The NaI crystal (2.54 cm [1 in.] long) is hydroscopic and is enclosed in a hermetically sealed can (2.54 cm [1 in.] diameter) to maintain its integrity. Other components of the gamma detector are the high-voltage supply, photo-multiplier tube, and the pre-amp and multi-channel analyzer. The settings of the detector components are fixed (i.e., set up during assembly, prior to calibration) and cannot be adjusted by the field-logging engineer. The detector gain and lower threshold are set to record gamma ray activity with energies between 100 and 3000 keV. By comparison, the highest gamma ray from naturally occurring radionuclides is from thorium-232 (Th-232), and it occurs at 2614 keV. Coleman[1] lantern mantles containing Th-232 are used as a field verifier at the beginning and ending of each day's logging activities to check detector resolution (integrity) and energy calibration (amplifier gain).

The gross gamma calibration models located at the U.S. Department of Energy (DOE) Hanford Site near Richland, Washington, were used to perform the NaI detector calibrations. Calibration was performed in two (low-concentration) gross gamma calibration zones, which are identified as SBL and SBU. The calibration method incorporated the attenuation effect of the steel casing of the probeholes. A section of the steel drill tubing (1.23 m [4 ft] long and 0.97 cm [0.38 in.] thick) was installed over the detector during calibration measurements to acquire spectra that properly represent logging conditions and the varying gamma ray energy. The calibration data are summarized in Table 1. The calibration units are pCi/g of equivalent Ra-226 (eRa-226) (Steele and George 1986). Figure 2 shows the calibration certificate.

Table 1. Gross Gamma Calibration Data.

| Calibration Model | Concentration eRa-226 (pCi/g) | Gross Gamma Response[a] (cps) | Dead-Time Corrected Gross Gamma Count-Rate[b] (cps) |
|---|---|---|---|
| SBL | 324 | 2481 | 2537 |
| SBU | 185 | 1394 | 1411 |

[a]Count rates are mean of 10 sample measurements at 100-sec each, 0.38 in. casing, 3/27/2007.
[b]NaI Detector system dead time is 8.92 microsecond.

The NaI gamma surveys were logged at 1.23 m/min (4 ft/min). A spectrum of 256 channels was collected each 0.15 m (0.5 ft) from the bottom of the probehole to the surface. The spectra were recorded in Ortec[2] PHA format with one spectrum per file (filename extension of "-.chn"). Detector count rates were dead-time corrected and the gamma survey data was processed as gross gamma response to determine the concentration of eRa-226 in pCi/g.

The dead-time correction is a nonparalysable relationship (Knoll 1979) and is described by the following equation:

[1]Coleman is a registered trademark of The Coleman Company, Inc., Wichita, Kansas.
[2]Ortec is a registered trademark of Ortec B.V., Gouda, Netherlands.

$$C_t = \frac{C_{obs}}{1 - \varepsilon \cdot C_{obs}}$$

where $C_t$ is the true or dead time-corrected count rate in c/s, $C_{obs}$ is the observed count rate in c/s, and $\varepsilon$ is the dead-time factor of 8.92μs. The dead-time factor was determined when the detector was calibrated for eCs-137 in the Hanford vadose well 299-W10-72.

The NaI gross gamma detector was also calibrated for eCs-137 (pCi/g). Calibration for eCs-137 was performed in Hanford vadose well 299-W10-72 (Cs-137 calibration standard). The Cs-137 in the well is stable, except for the 30-year half-life decay of the radioisotope. Also, distribution of Cs-137 ranges from less than 1 pCi/g to 40,000 pCi/g along the well path (depth). The concentrations of Cs-137 were established by two high-purity germanium (HPGe) detectors (70% and High Rate tools, operated by Stoller Corporation). Casing in the well is 0.288 in. thick. In order to duplicate the 0.97 cm (0.38-in.) casing of the small diameter probeholes, a section of steel tubing 0.095 in. thick was installed over the detector for calibration. The conversion factor from detector count rate (cps) to eCs-137 is 0.384 (pCi/g per cps) for casing thickness of 0.97 cm (0.38 in.). See Figure 3 for the calibration certificate.

## 2.2 NEUTRON MOISTURE CALIBRATION AND SURVEYS

The neutron moisture sonde combines the PNG-owned thermal-neutron detector and a DOE-owned sealed neutron source (50 mCi AmBe). The DOE-owned neutron source was used because it was already on the Hanford Site and was managed by the DOE Radiation Management Program. The neutron source is an integral component of a neutron moisture detector, manufactured by Campbell Pacific Nuclear, and is identified by the tool serial number H370608792.

The integrity of the sealed neutron source was always maintained when it was used in calibration activities and in probehole logging activities. Source integrity was achieved by inserting the PNG-owned neutron detector module into the housing containing the sealed neutron source.

Calibration was performed in six borehole calibration models (Meisner and Randall 1995). Three of these models had a 15.24 cm (6-in.) hole size and three models had a 20.32 cm (8-in.) hole size. The moisture content was different for each borehole model within each set of three models (5, 12, and 20 percent by volume). The detector count rate in each of the six borehole calibration models is summarized in Figure 4. The calibration certificate is shown in Figure 5.

Table 2. Moisture Calibration Data.

| Moisture Content Percent – volume fraction | 6 inch Models[a] (cps) | 8 inch Models[a] (cps) |
|---|---|---|
| 5% vf | 105.20 | 82.78 |
| 12% vf | 156.13 | 116.69 |
| 20% vf | 196.27 | 141.46 |

[a]Count rates are mean of 10 sample measurements at 100-sec each, 11/7/2007.

The probehole size for this project was 6.35 cm (2.5 in.) outside diameter (OD). Therefore, the moisture calibration was extrapolated to the correct hole size. Figure 4 shows the moisture calibration certificate for the 6.35 cm (2.5-in.) hole size.

The probehole moisture survey was collected at 0.61 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 0.97 cm (0.38 in.), a correction factor of 1.055 is required to increase (normalize) the observed neutron detector count rate to the conditions of the calibration model (Meisner et al. 1996).

## 3.0 GYROSCOPE BOREHOLE DEVIATION SURVEY

The probe is designed to assay deviations in the path of both dipping and vertical boreholes. The gyroscope probe is 40 mm (1.575 in.) in diameter, 1.65 m (5.42 ft) long, and weighs 5.9 kg (13 lb). No centralizers are used in small diameter probeholes. Zero depth reference for the surveys is at ground level.

The gyroscope survey was recorded both as the sonde was lowered into the probehole (in-run) and as it was retrieved (out-run). Data from the probe sensors are recorded in metric units at the rate of two samples per second. The logging probe speed is 10 m/min (32.81 ft/min) or less. At least four times each hour, during the survey, the hoist is momentarily halted to record the gyroscope drift rate at these stationary locations.

The gyroscope probe contains two high-precision components: an inclinometer and a gyroscope. The inclinometer records the probe tilt (dip) at the precision of 0.01 degrees. The probe's orientation is determined by a very precise rate-gyro with a precision of 0.0001 degrees.

The path of the borehole is derived by post-processing of the raw survey data, which is performed as follows.

- Identify the gyroscope drift rate and remove the component from the survey data.
- Use X-Y data from the inclinometer to compute probe dip (vertical is -90 degrees).
- Compute path of borehole: Northing, Easting, elevation (vertical depth), and dip (tangent to borehole at each survey depth position).

The survey result is the probehole path, which is presented graphically with these components.

- 3-D trajectory plot of XYZ (Northing and Easting versus elevation).
- X and Y deviation plots (2D plots of Northing versus depth and Easting versus depth).
- Dip plot of tangential angle versus depth.
- Gyro Survey Information in text format:
    - Coordinates at survey Top,
    - Coordinates at survey Base,
    - Maximum deviation (dip) angle and depth location,
    - Measured depth and vertical depth at survey Base.

Figure 2. Gross Gamma Calibration Certificate (Equivalent Radium-226).

# Certificate of Calibration
## SDGR-4N4-NaI1
### March 27, 2007

Data were taken at the Hanford KUT models on March 27, 2007. SDGR-4N4-NaI1 is the designated Scintillator tool. Two models were used for the gross gamma calibration (SBU and SBL). Ten spectra were recorded for each model in order to perform statistical analysis. The observed deviations were seen to be near the theoretically predicted variation. For this analysis, refer to the compressed files: Calibration files.xls.

The instrument was covered with 0.97 cm (0.38-in.) wall-thickness probe tubing.

The coefficient analysis is determined by the algorithm described in WHC-SD-EN-TI-293, *Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models* (Randall and Stromswold 1995). The gross gamma calibration for equivalent Ra-226 in pCi/g is a regression function and is generally defined by:

$$Ra = a*GR + b$$

Where Ra is the eRa-226 in pCi/g, and GR is the observed gross gamma count rate (c/s), dead time corrected. The coefficients of a and b are the fit coefficients. A more physical relationship constrains the intercept (b) to a zero value. This computation yields improved response extrapolated to low concentrations of K, U, and Th (clean zones). The coefficients were determined to be:

$$a = .1285 \quad eRa\text{-}226\ (pCi/g)\ /\ (c/s)$$
$$b \equiv 0$$

Digital files are condensed as Cal_SD-GR-02_2005-v0.zip. This compressed file contains:

- Calibration raw data
- MathCad[1] data analysis files
- Spreadsheet data formatting.

The undersigned certifies that the data archived in the "Cal_SDGR-NaI_2007-v0.zip" file were collected and evaluated in accordance with Randall and Stromswold 1995, and that the above-stated calibration coefficients are correct and applicable for the SDGR-4N4-NaI1 tool effective March 27, 2007.

Signature:

/s/ Russel Randall, PhD — April 3, 2007
Three Rivers Scientific

[1]MathCAD is a registered trademark of Mathsoft Corporation, Cambridge, Massachusetts.

Figure 3. Gross Gamma Calibration Certificate (Equivalent Cesium-137).

# Certificate of Calibration
## SDGR-4N4-NaI1
March 27, 2007

Data were taken at Hanford well 299-W10-72 located in the 216-T-7 Crib. SDGR-4N4-NaI1 is the designated scintillator tool. A repeat interval from 12.19 to 24.38 m (40 to 80 ft) was recorded in order to perform statistical analysis. The observed deviations were seen to be reasonable for the instrument response.

The instrument was covered with 0.24 cm (0.095-in.) wall-thickness probe tubing, and the well casing is 0.73 cm (0.288 in.) thick, for a total wall thickness of 0.97 cm (0.38 in.).

The calibration for equivalent Cs-137 for the SDGR-4N4-NaI1 instrument is described in RPP-RPT-27605, *Gamma Surveys of Single Shell Tank Laterals for A and SX Tank Farm* (Randall and Price 2006). The gross gamma calibration for eCs-137 in pCi/g is a regression function and is generally defined by:

$$Cs = \alpha * GR$$

Where Cs is the eCs-137 in pCi/g, and GR is the observed gross gamma count rate (c/s), dead time corrected. The coefficient $\alpha$ is the fit coefficient. The dead time correction is a nonparalysable relationship, thus the following full relationship

$$Cs = \frac{\alpha \cdot GR}{1 - \varepsilon \cdot GR}$$

where $\varepsilon$ is the system dead time. The least square fit results in the following values for $\alpha$ and $\varepsilon$:

$\alpha$=0.384 eCs-137 (pCi/g) / (c/s)
$\varepsilon$=8.92 $\mu$s

Digital files are condensed as Cal_EqCs_SDGR-NaI1_2007-v0.zip. This compressed file contains:

- Calibration raw data
- MathCad data analysis files
- Spreadsheet data formatting.

The undersigned certifies that the analysis files are archived in "Cal_EqCs_SDGR-NaI1_2007-v0.zip" and this file was evaluated in accordance with Randall and Price 2006 and that the above-stated calibration coefficients are correct and applicable for the SDGR-4N4-NaI1 tool, effective March 27, 2007.

Signature:

/s/ Russel Randall, PhD  Date: April 3, 2007
Three Rivers Scientific

8

Figure 4. Moisture Calibration Certificate, 15.24 cm (6-in.) and 20.32 cm (8-in.) Hole.

***Certificate of Calibration for***
**SD-Moist792 Instrument**
November 7, 2007

Data were taken in the moisture models June 7, 2007, for the SD-Moist792 neutron-neutron moisture tool. The neutron source from DOE moisture tool #H370608792 was used with the passive neutron detector probe from PNG. This calibration is required for the small diameter logging, and funded by Energy*Solutions*, Master Ordering Agreement 017194.

Six models were used for moisture calibration, three for 15.24 cm (6-in.) casing and three for 20.32 cm (8-in.) casing. Repeated spectra were recorded for each model in order to perform statistical analysis. The observed statistical variation agreed with the theoretically predicted variation; for this analysis refer to the Stats-moist.xls file.

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306, *Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration* (Meisner et al. 1996). 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 $\alpha$ are fit coefficients, and CR is the dead time corrected observed total count rate, (c/s).

| **6-in. casing** | **8-in. casing** |
|---|---|
| **a = .0001748** | **a = .00006272** |
| **$\alpha$ = 2.203** | **$\alpha$ = 2.555** |

The undersigned certifies that the data archived in data file "SD-Moist792_2007.zip" were collected and evaluated in accordance with Meisner et al. 1996 and that the above-stated calibration coefficients are correct and applicable for the SD-Moist792 tool, effective November 7, 2007.

Signature:

/s/ Russel Randall, PhD — November 13, 2007
Three Rivers Scientific

Figure 5. Moisture Calibration Certificate, 6.35 cm (2.5-in.) Hole.

***Moisture Calibration Extrapolation to 2.5-Inch Borehole***
**SD-Moist792 Instrument**
November 7, 2007

Moisture calibration was performed in the Hanford physical models. These standards have 15.24 cm (6-in.) and 20.32 cm (8-in.) inside diameter casings. The Tank Farm Direct Push borehole is cased with a 6.35 cm (2.5 in,) outside diameter iron casing. The calibration for the moisture response is a function of borehole diameter.

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306. 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 $\alpha$ are fit coefficients, and CR is the dead time-corrected observed total count rate, (c/s). A linear extrapolation was applied to determine the 6.38 cm (2.51 in.) borehole diameter.

**2.51-in. borehole**
**a = .0003057**
**$\alpha$ = 1.938**

The undersigned certifies that the analysis files are archived in the "SD-Moist792_2007.zip" file that was evaluated in accordance with Energy*Solutions* procedures and that the above-stated calibration coefficients are correct and apply to the SD-Moist792 tool, effective November 7, 2007.

Signature:

/s/ Russel Randall, PhD  November 13, 2007
Three Rivers Scientific

10

## 4.0 CONCLUSION

Scintillation Gross Gamma and Neutron Moisture survey logs were collected in nine probeholes installed at the UPR-200-E-86 investigation site near the 241-C Tank Farm. Probeholes C5947 and C5957 were advanced beyond their initial target depth of 30.48 m (100 ft). C5947 was driven to 60.96 m (200 ft) and additionally was logged with the gyroscope sonde to document its path. Probehole C5957 was advanced to 43.43 m (142.5 ft).

The rapid-scan gamma surveys of the probeholes can be summarized as follows.

- Eight of the nine probeholes showed only background activity from the natural radionuclides. Gamma activity above background levels was only encountered in probehole C5959.
- The maximum gamma activity detected in probehole C5959 was 40,000 pCi/g of eCs-137.

The neutron moisture surveys for all probeholes had unique profiles if each log had been examined in detail. However, with a generalized review, the profiles for all probeholes had the following similarities.

- Numerous high-moisture intervals were identified within the first 7.62 m (25 ft) of the surface. Most high-moisture intervals were thin zones.
- Within the top 30.48 m (100 ft) of the surface, the interval with the lowest moisture content was from 9.14 to 12.19 m (30 to 40 ft).
- A high-moisture thin zone was encountered near 36.27 m (119 ft) in the two deeper probeholes (C5947 and C5957), and the lowest moisture was encountered below this thin zone interface (even lower than the interval from 9.14 to 12.19 m [30 to 40 ft]).

The gyroscope deviation survey for probehole C5947 is shown in Appendix A. The plot shows both the in-run and out-run survey results that are summarized in Table 3. The Closure Distance in Table 3 is the distance from the probehole Northing and Easting positions to the vertical position. The maximum deviation (dip) was 3.2 degrees at the maximum survey depth of 59.6 m (195.8 ft). The difference between the depth measured down the probehole [59.683 m (195.810 ft)] and vertical depth computed from the gyro survey [59.652 m (195.709 ft)] is 0.031 m (0.102 ft or 1.22 in.).

Table 3. Gyroscope Survey Results for C5947.

| Depth (meters, feet) | Northing (meters) | Easting (meters) | Closure Distance (meters, feet) | Elevation (meters) | Dip (degrees) |
|---|---|---|---|---|---|
| 0.561 m, 1.84 ft | 0.01 | 0.00 | 0.01 m, 0.03 ft | -0.561 | -88.81 |
| 10.051 m, 32.98 ft | 0.21 | 0.12 | 0.24 m, 0.79 ft | -10.048 | -88.87 |
| 20.048 m, 65.77 ft | 0.39 | 0.19 | 0.43 m, 1.42 ft | -20.043 | -88.93 |
| 30.051 m, 98.59 ft | 0.48 | 0.36 | 0.60 m, 1.97 ft | -30.044 | -88.75 |
| 40.011 m, 131.27 ft | 0.46 | 0.67 | 0.81 m, 2.67 ft | -39.999 | -87.97 |
| 50.005 m, 164.06 ft | 0.51 | 1.02 | 1.14 m, 3.74 ft | -49.986 | -87.44 |
| 59.683 m, 195.81 ft | 0.66 | 1.48 | 1.62 m, 5.32 ft | -59.652 | -86.86 |

## 5.0 REFERENCES

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Steele, W. Douglas and David C. George, 1986, *Field Calibration Facilities for Environmental Measurement of Radium, Thorium, and Potassium*, Bendix Field Engineering Corporation, Grand Junction, Colorado.

## APPENDIX A
## GAMMA AND MOISTURE SURVEY RESULTS

Survey plots for the gross gamma, moisture, and gyroscope sondes follow for the nine probeholes installed around the UPR-200-E-86 investigation site. The two deep probeholes, C5947 and C5957, are displayed twice: at the standard depth scale of 32.0 m (105 ft) and at the depth scale of 61.57 m (202 ft).

The gross gamma survey data were dead-time corrected and the results are converted to the two calibration units (i.e., eRa-226 and eCs-137). The results are plotted as either eRa-226 or eCs-137, depending on the gamma activity level.

- The Equivalent Ra-226 is used for low gamma ray activity, which is characteristic of Hanford sediments (brown solid line). The concentration of the natural radionuclides in the Hanford sediments is less than 5 pCi/g of eRa-226, and the low gamma activity zones are displayed as eRa-226 when the concentrations are less than 5 pCi/g. The higher gamma activity zones are displayed with the eCs-137 plot scale. The plot scale for eRa-226 is 0-25 pCi/g
- Equivalent Cs-137 (orange dot-dashed line) is used for displaying gamma activity zones that have concentrations greater than the natural radionuclides (if present). The gamma activity is displayed as eCs-137 when high gamma activity zones are present and when the computed concentrations are greater than 4 pCi/g of eCs-137. Only probehole C5959 had a high gamma activity zone. The plot scale for eCs-137 is logarithmic from 10 to 100,000 (i.e., $10^0$ to $10^5$ or five orders of magnitude).

The neutron-neutron moisture survey data are shown with a blue dashed line. The moisture plot scale is 0-25 (% vf).

The plot legend is shown in Figure A1.

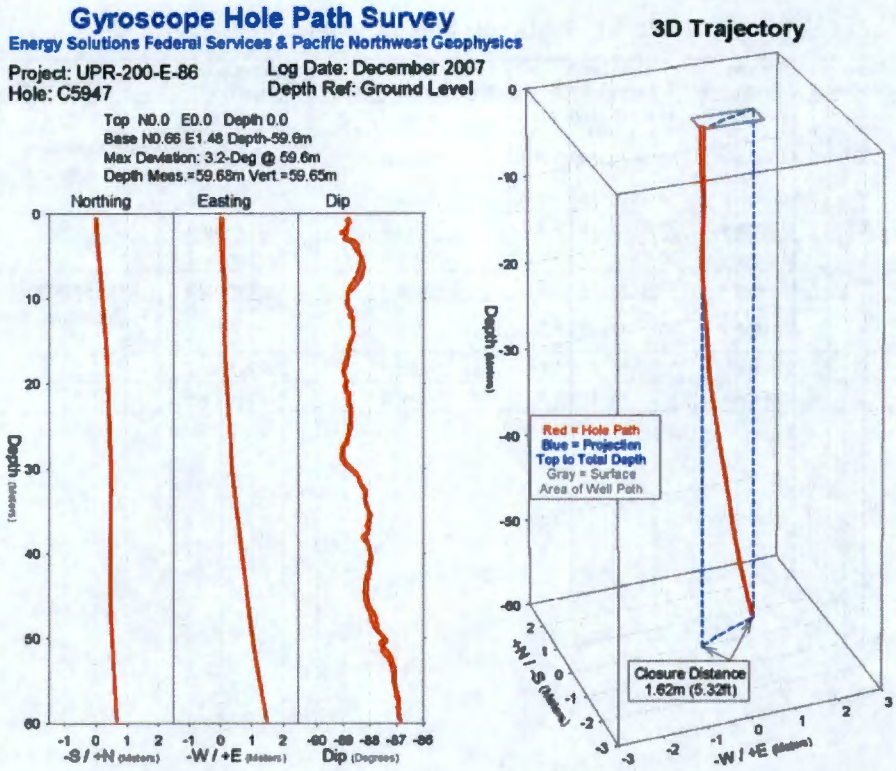
Figure A1. Plot Legend.

The gyro survey shows the borehole path in the following ways:

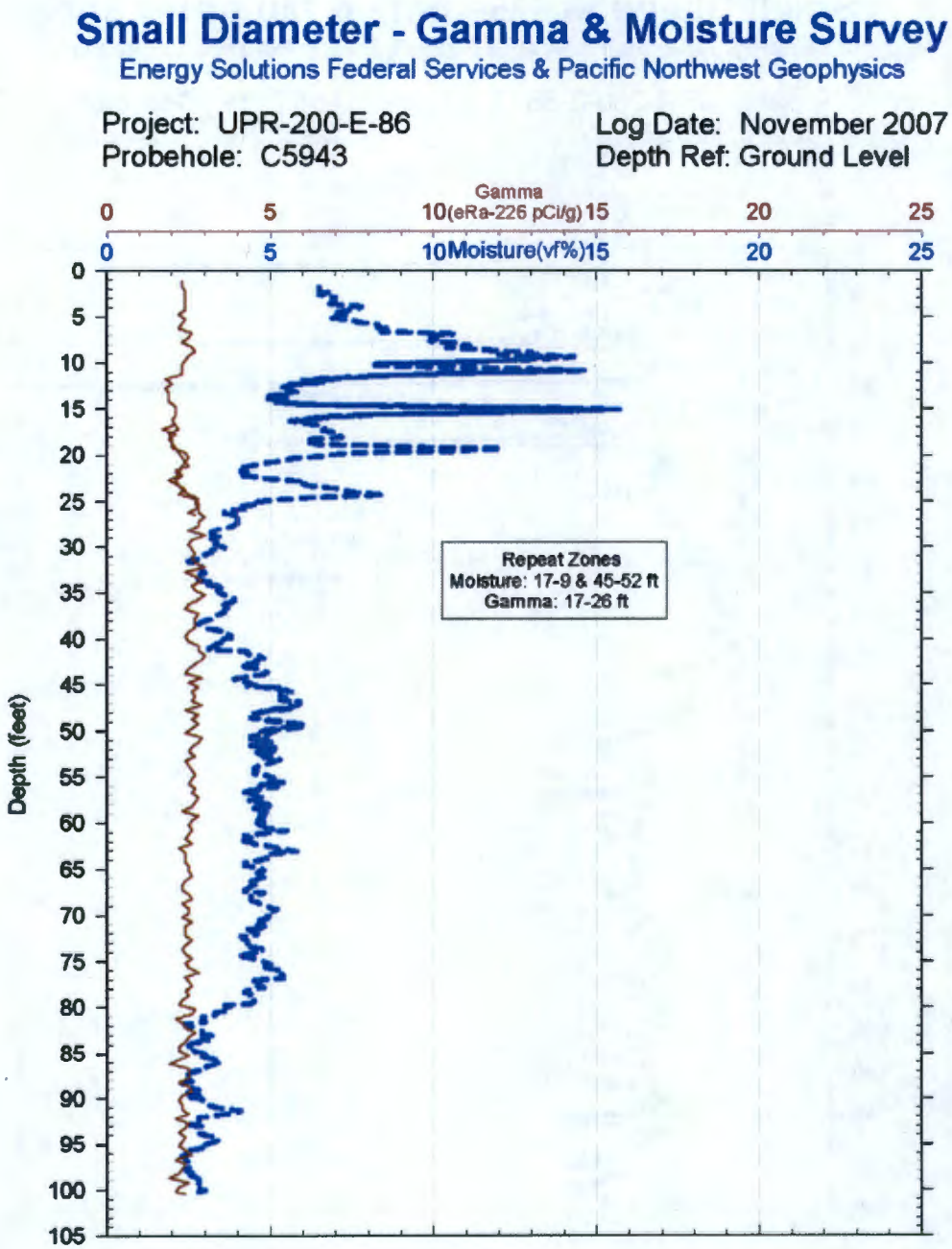
- 3-D trajectory plot of XYZ (Northing and Easting versus depth in meters). Also two projections are shown.
  - Blue dashed line from start location to ending location.
  - Gray solid line at surface as a rectangle that encompasses the starting location and projected ending location.
- X and Y deviation plots (2-D plots of Northing and Easting versus depth in meters).
- Dip plot of tangential angle (degrees) versus depth (meters).

Table A1. Probehole Survey Summary.

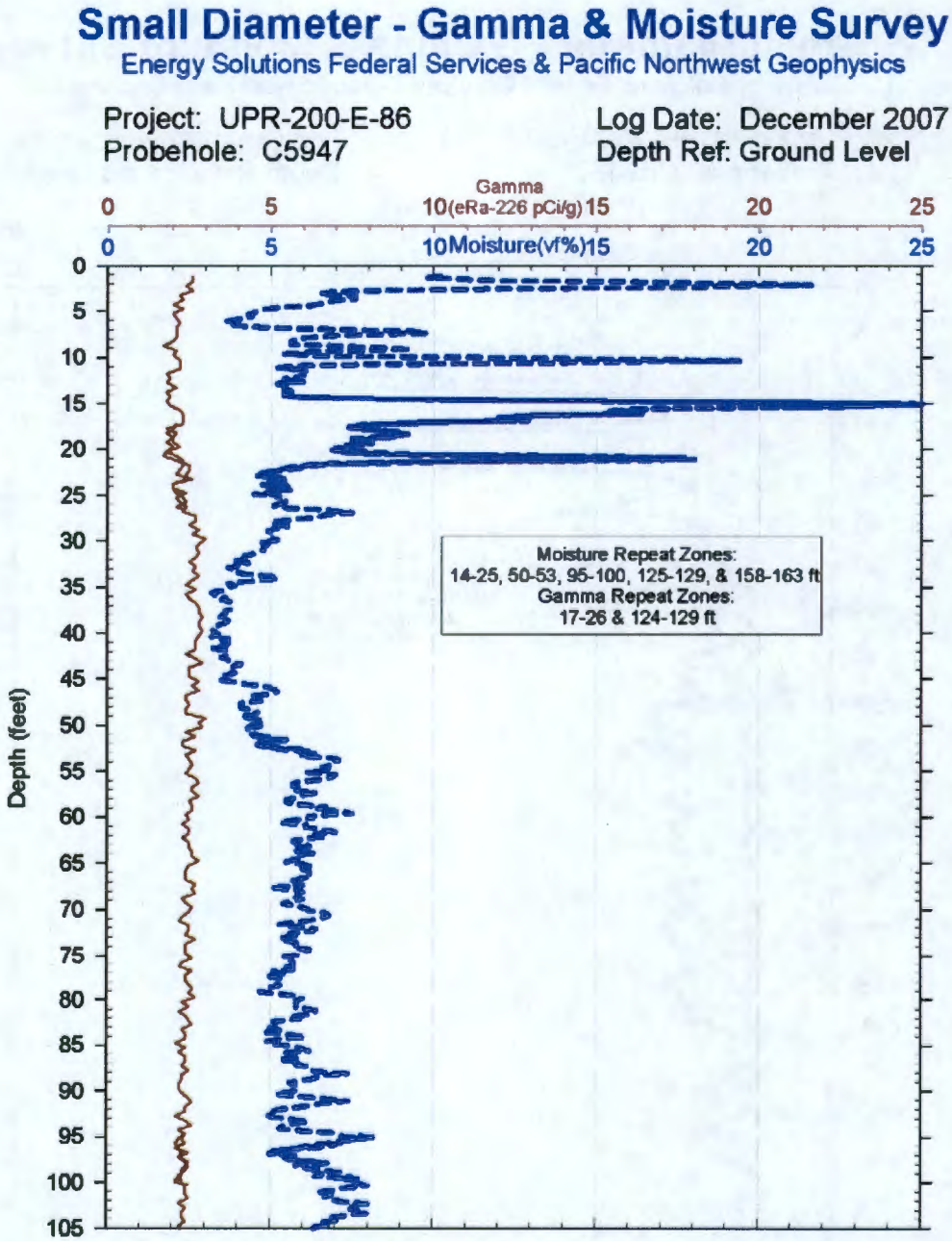
| Hole | Gross Gamma | Neutron Moisture | Hole Depth (meters, feet) | Depth Max Gamma Activity | Max eCs-137 (pCi/g) | Comment |
|---|---|---|---|---|---|---|
| C5943 | X | Moisture | 30.63 m, 100.5 ft | Natural | Background | |
| C5947 | X | Moisture | 60.81 m, 199.5 ft | Natural | Background | Hole Deepened. Gyroscope Survey |
| C5951 | X | Moisture | 30.63 m, 100.5 ft | Natural | Background | |
| C5953 | X | Moisture | 31.85 m, 104.5 ft | Natural | Background | |
| C5955 | X | Moisture | 30.63 m, 100.5 ft | Natural | Background | |
| C5957 | X | Moisture | 43.43 m, 142.5 ft | Natural | Background | Hole Deepened. |
| C5959 | X | Moisture | 30.57 m, 100.3 ft | 8 ft | 40,000 | High gamma zone is thin. |
| C5961 | X | Moisture | 30.63 m, 100.5 ft | Natural | Background | |
| C5963 | X | Moisture | 30.57 m, 100.3 ft | Natural | Background | |


Gyroscope Hole Path Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Hole: C5947
Log Date: December 2007
Depth Ref: Ground Level
Top N0.0 E0.0 Depth 0.0
Base N0.66 E1.48 Depth-59.6m
Max Deviation: 3.2-Deg @ 59.6m
Depth Meas.=59.68m Vert.=59.65m
Northing
Easting
Dip
Depth (Meters)
-S / +N (Meters)
-W / +E (Meters)
Dip (Degrees)
3D Trajectory
Red = Hole Path
Blue = Projection
Top to Total Depth
Gray = Surface
Area of Well Path
Closure Distance
1.62m (5.32ft)
Depth (Meters)
-W / +E (Meters)

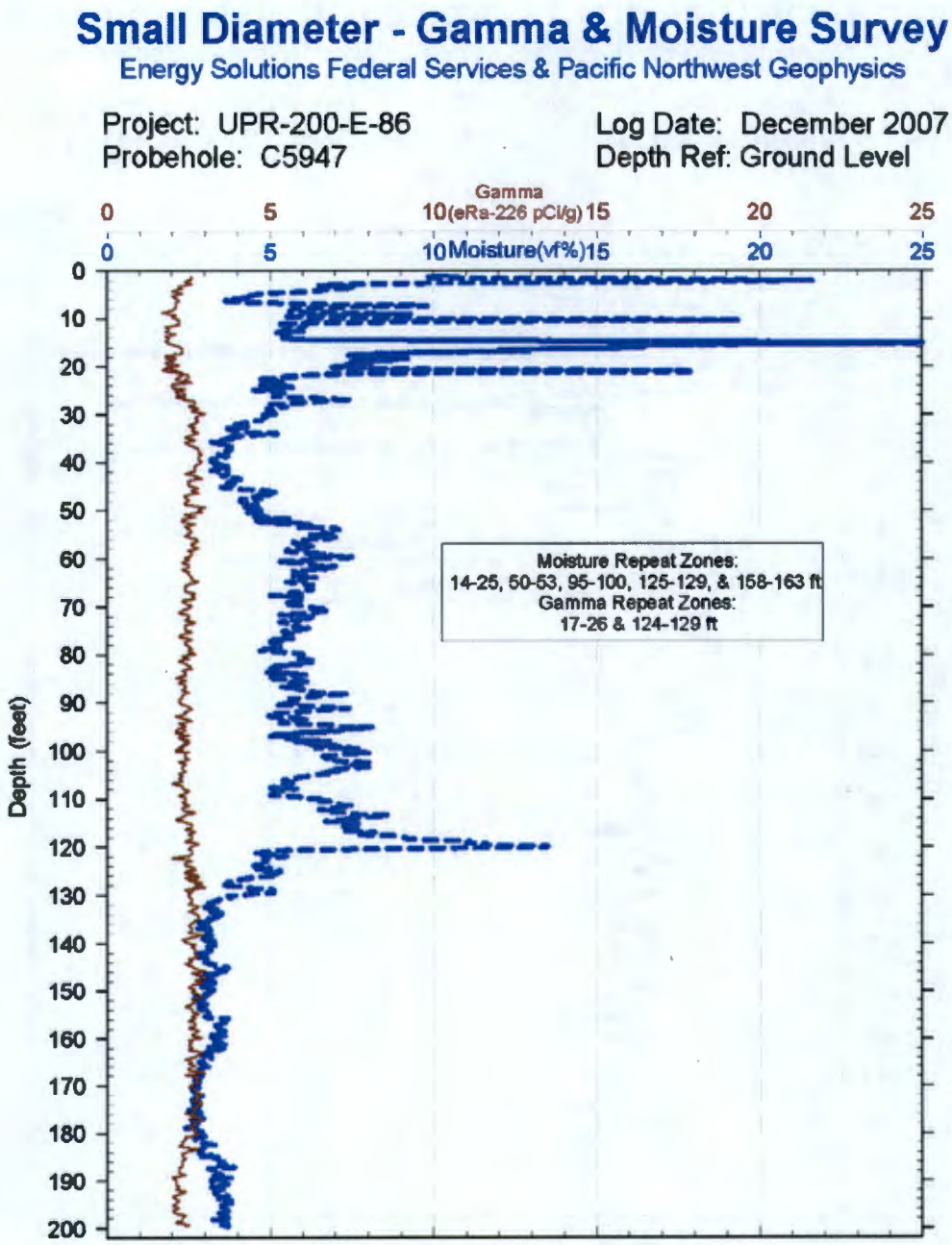
A-3


Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Probehole: C5943
Log Date: November 2007
Depth Ref: Ground Level
Gamma
(eRa-226 pCi/g)
Moisture(vf%)
Depth (feet)
Repeat Zones
Moisture: 17-9 & 45-52 ft
Gamma: 17-26 ft

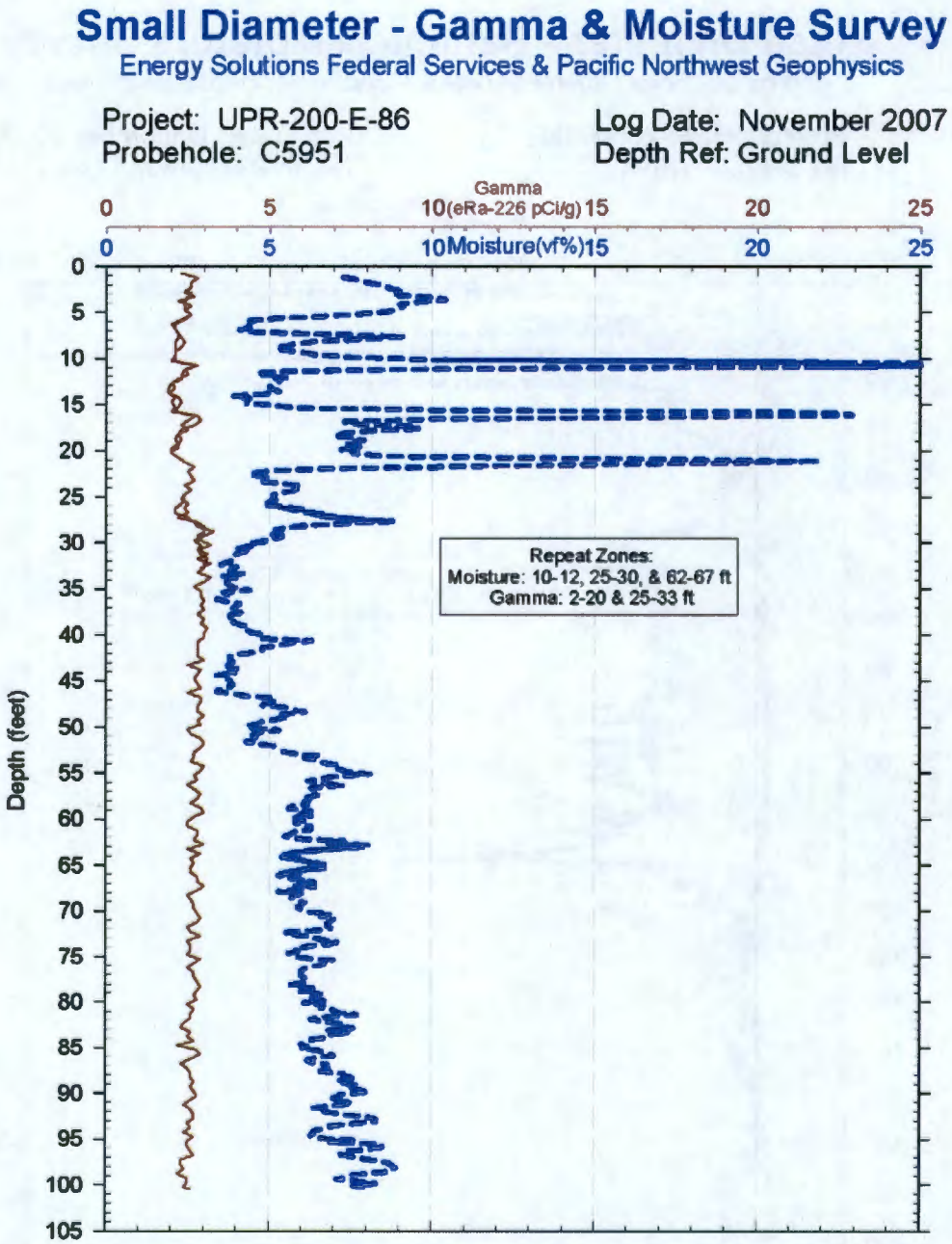
A-4

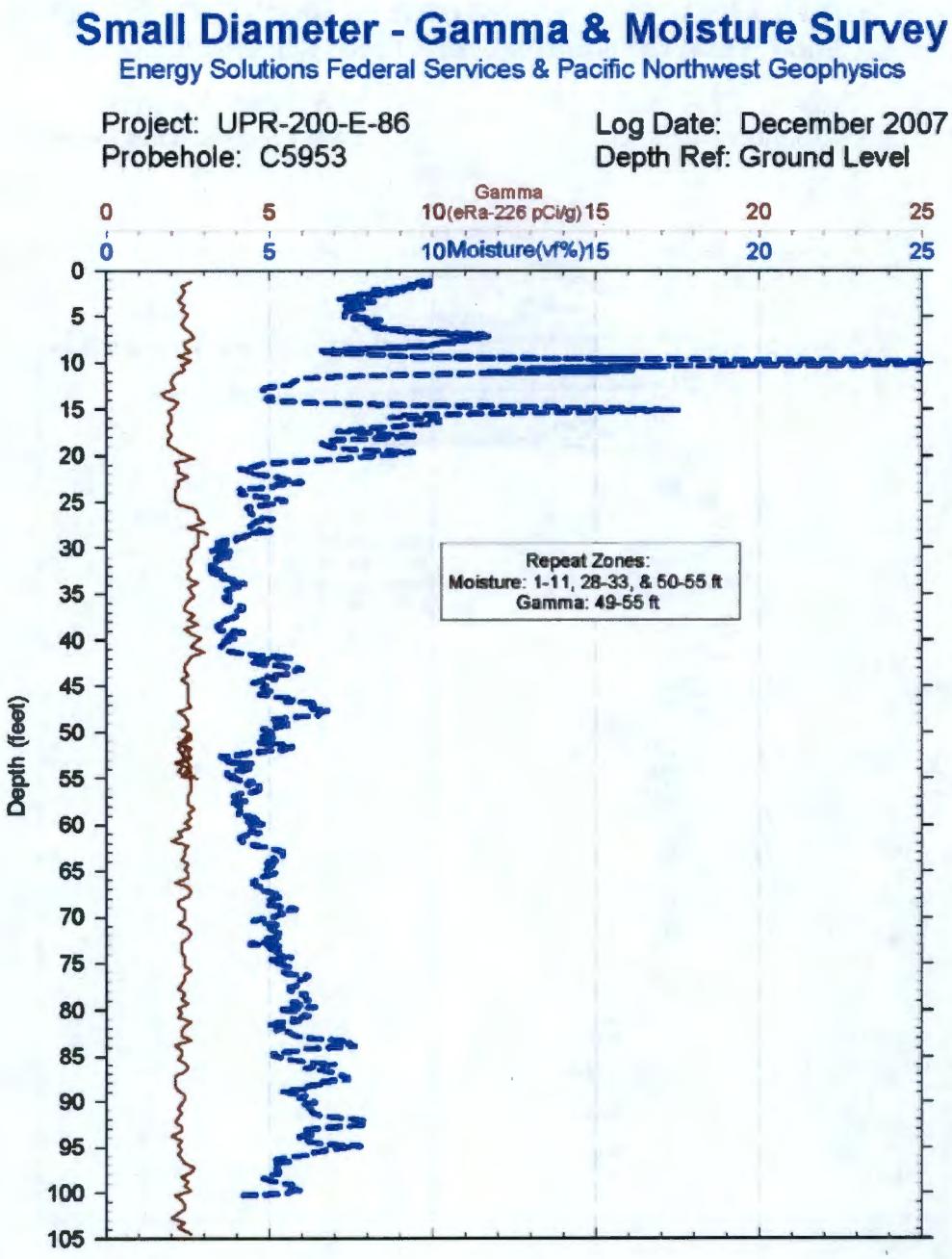

Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Probehole: C5947
Log Date: December 2007
Depth Ref: Ground Level
Gamma
(eRa-226 pCi/g)
Moisture(vf%)
Depth (feet)
Moisture Repeat Zones:
14-25, 50-53, 95-100, 125-129, & 158-163 ft
Gamma Repeat Zones:
17-26 & 124-129 ft

A-5


Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Probehole: C5947
Log Date: December 2007
Depth Ref: Ground Level
Gamma
(eRa-226 pCi/g)
Moisture(vf%)
Depth (feet)
Moisture Repeat Zones:
14-25, 50-53, 95-100, 125-129, & 158-163 ft
Gamma Repeat Zones:
17-26 & 124-129 ft

A-6


Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Probehole: C5951
Log Date: November 2007
Depth Ref: Ground Level
Gamma
(eRa-226 pCi/g)
Moisture(vf%)
Depth (feet)
Repeat Zones:
Moisture: 10-12, 25-30, & 62-67 ft
Gamma: 2-20 & 25-33 ft


Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Probehole: C5953
Log Date: December 2007
Depth Ref: Ground Level
Gamma
(eRa-226 pCi/g)
Moisture(vf%)
Depth (feet)
Repeat Zones:
Moisture: 1-11, 28-33, & 50-55 ft
Gamma: 49-55 ft

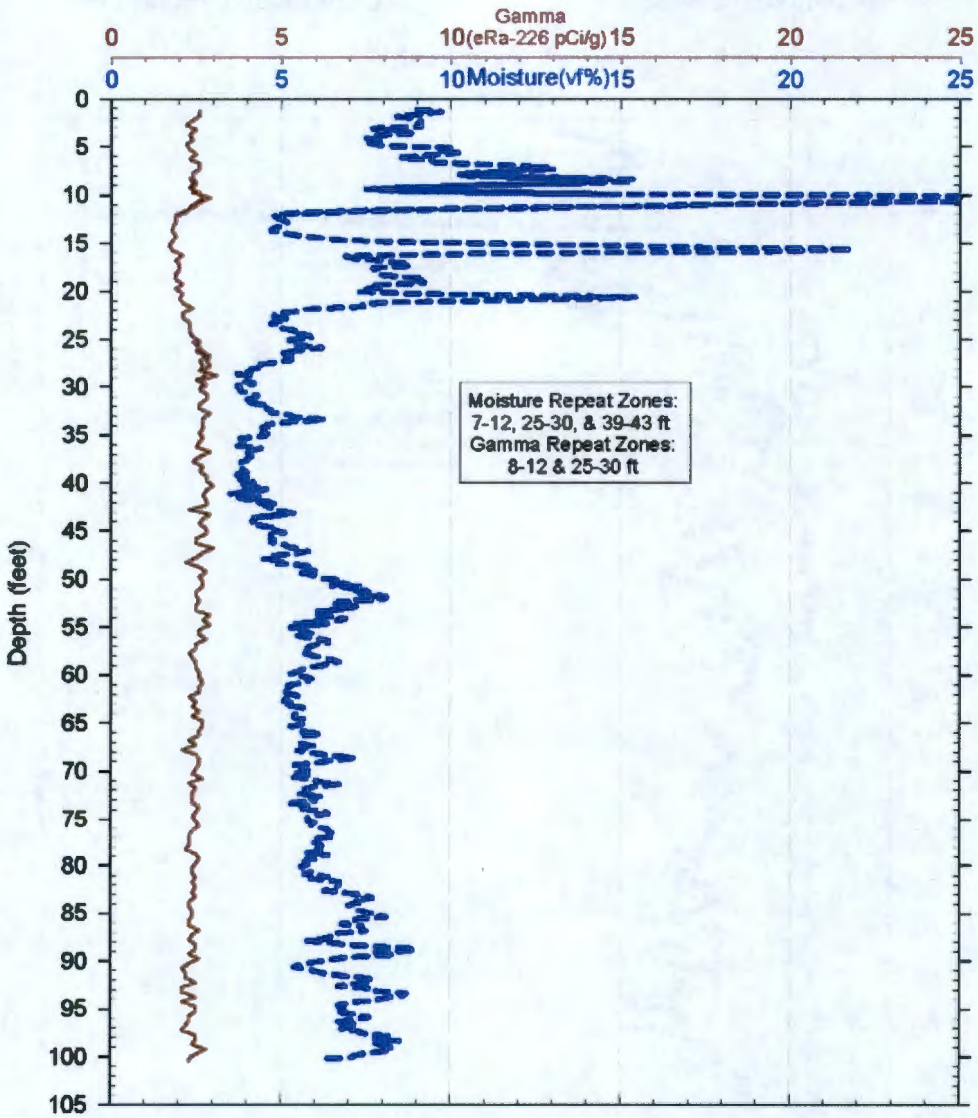
A-8

# Small Diameter - Gamma & Moisture Survey

Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-86
Probehole: C5955

Log Date: December 2007
Depth Ref: Ground Level

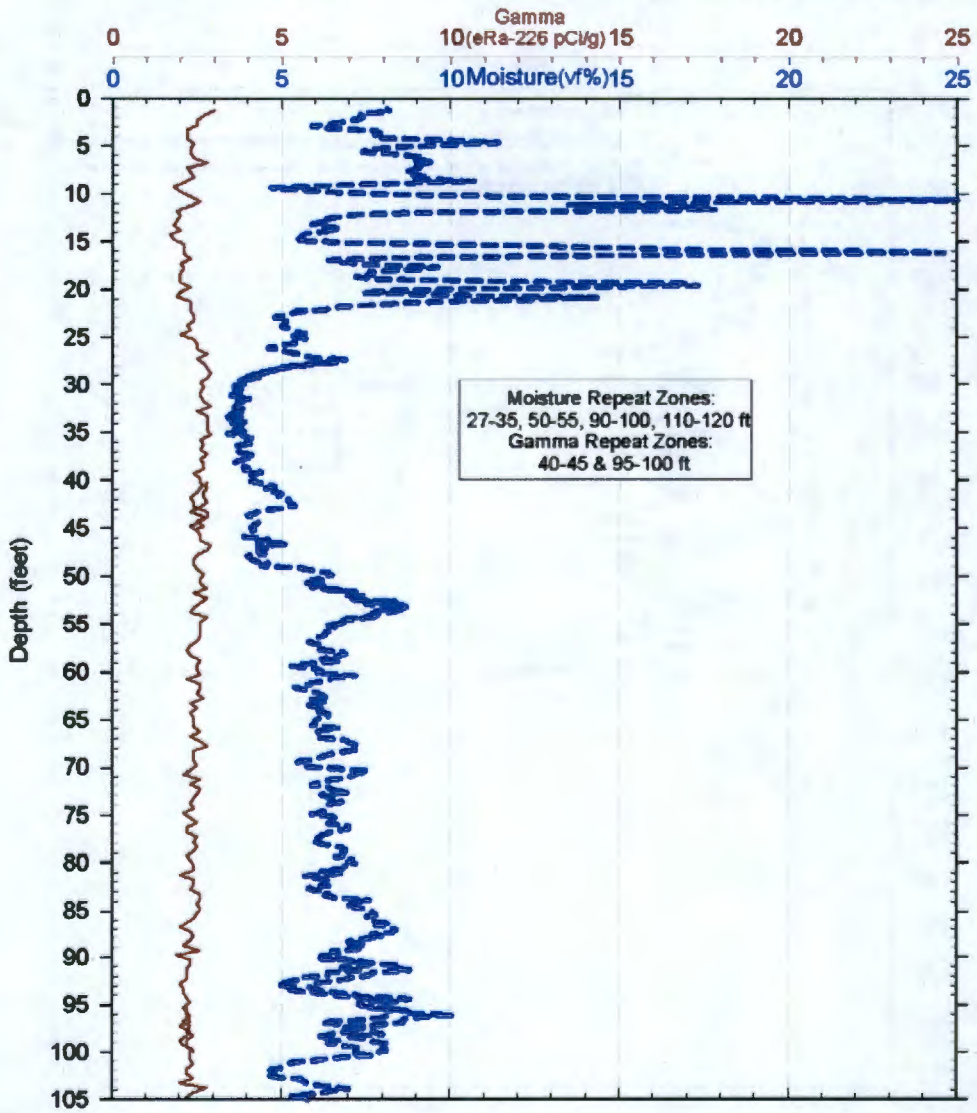



A-9

# Small Diameter - Gamma & Moisture Survey

Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-86 Log Date: January 2008
Probehole: C5957 Depth Ref: Ground Level



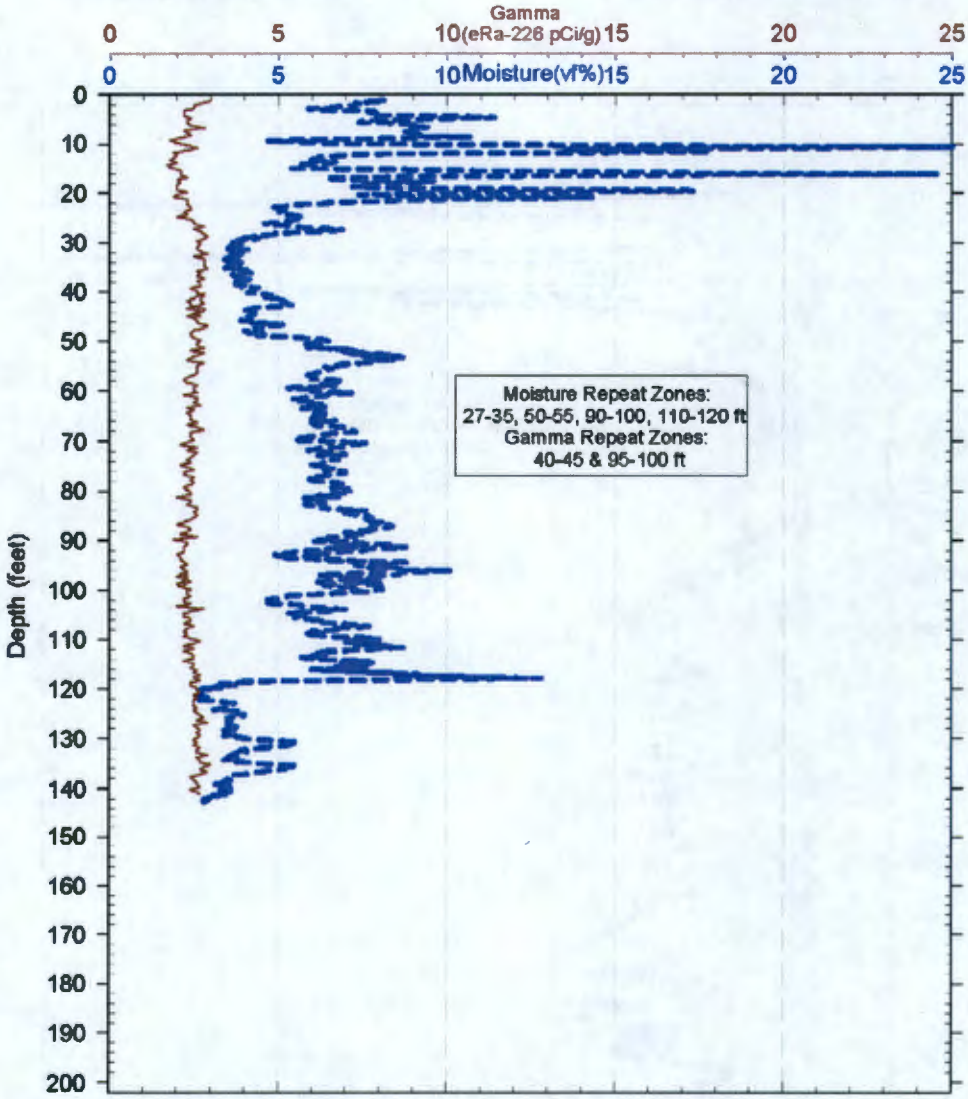

A-10

# Small Diameter - Gamma & Moisture Survey

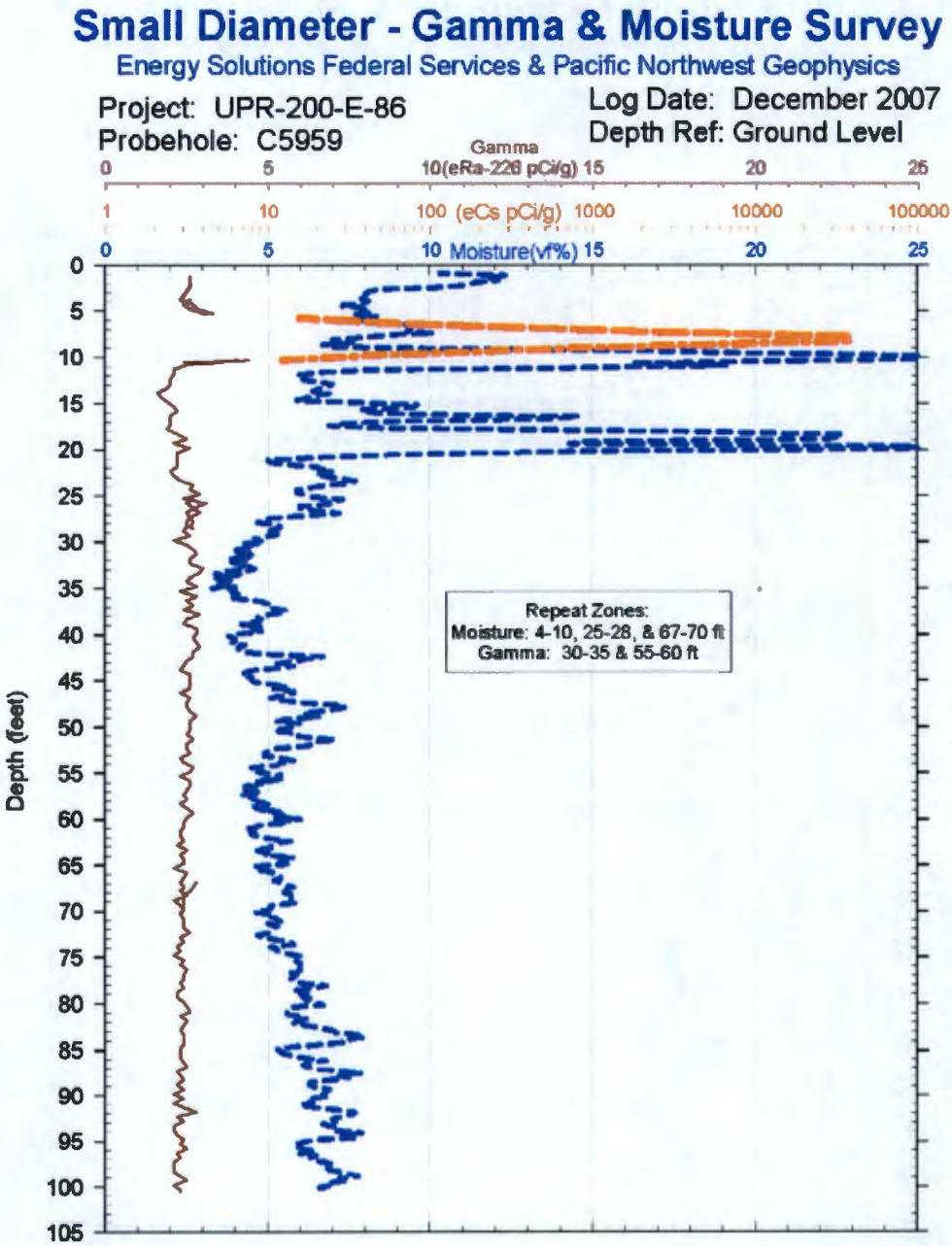
Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-86
Probehole: C5957

Log Date: January 2008
Depth Ref: Ground Level




A-11


Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Probehole: C5959
Log Date: December 2007
Depth Ref: Ground Level
Gamma
10(eRa-226 pCi/g)
(eCs pCi/g)
Moisture(vf%)
Depth (feet)
Repeat Zones:
Moisture: 4-10, 25-28, & 67-70 ft
Gamma: 30-35 & 55-60 ft

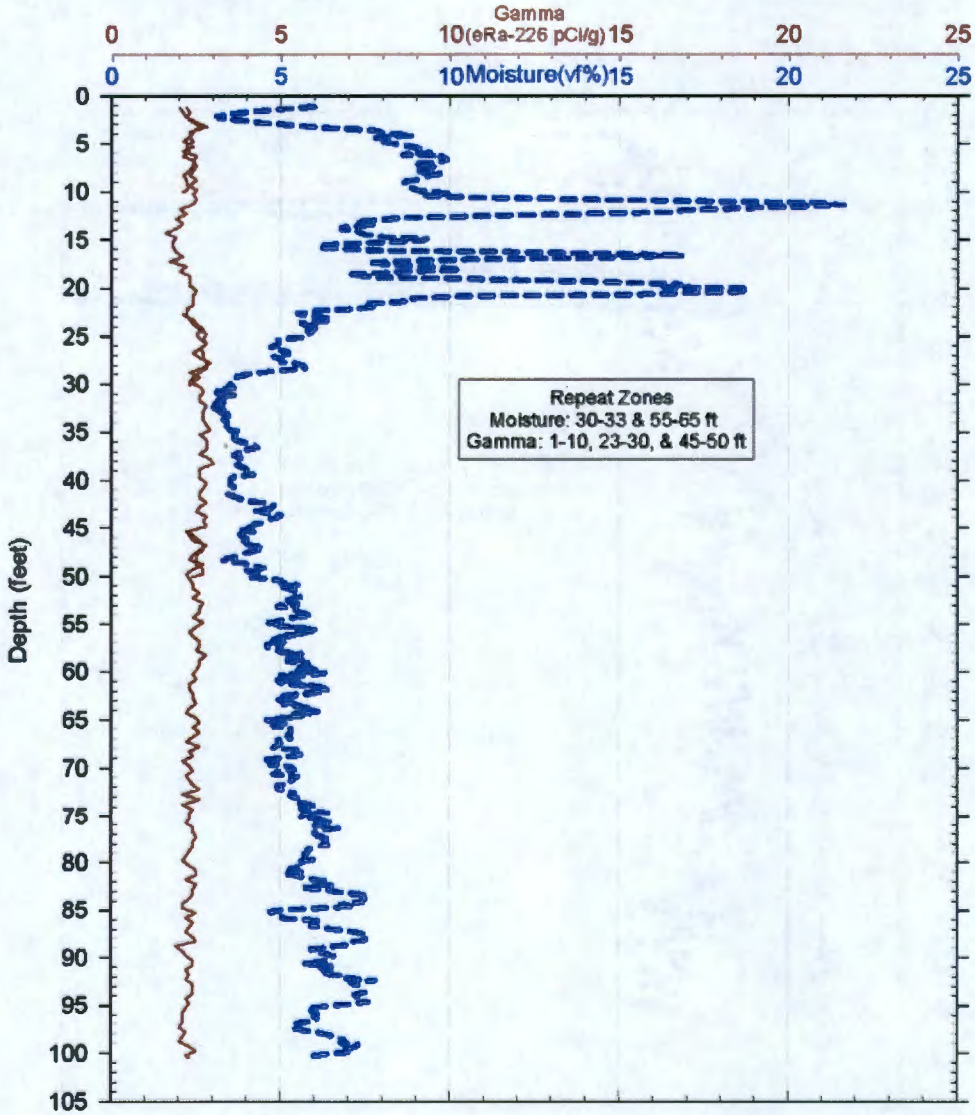
A-12

# Small Diameter - Gamma & Moisture Survey

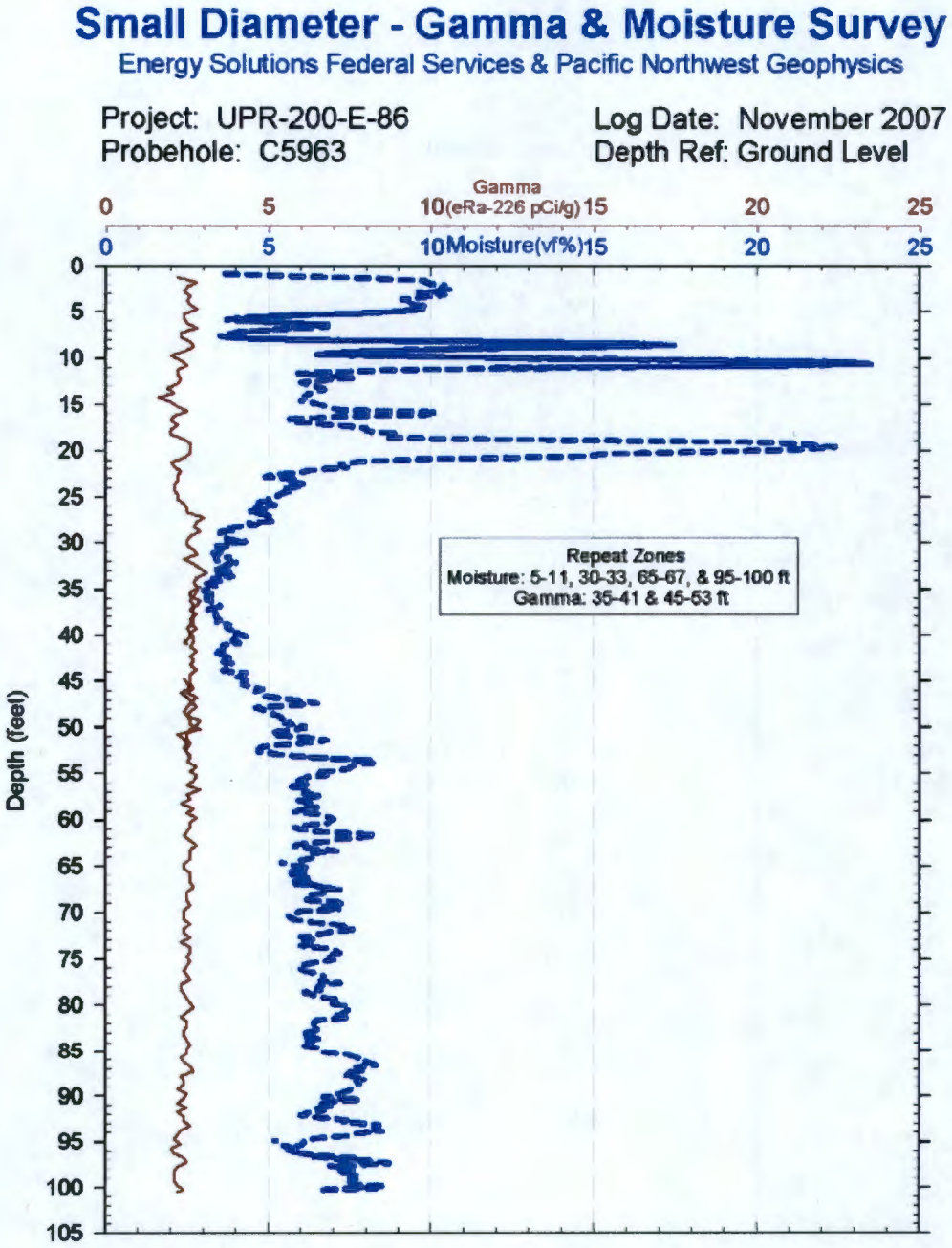
Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-86
Probehole: C5961

Log Date: November 2007
Depth Ref: Ground Level




A-13


Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-86
Probehole: C5963
Log Date: November 2007
Depth Ref: Ground Level
Gamma
(eRa-226 pCi/g)
Moisture(vf%)
Depth (feet)
Repeat Zones
Moisture: 5-11, 30-33, 65-67, & 95-100 ft
Gamma: 35-41 & 45-53 ft

A-14

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# APPENDIX F

# CHAIN OF CUSTODY FORMS AND FIELD LOGBOOK ENTRIES

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# CH2M Hill Group
## SAMPLING AUTHORIZATION FORM

**SAF NUM** V08-001 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 **REV** 0

| | | | |
|---|---|---|---|
| **PROJECT** | C-Tank Farms | | |
| **PROGRAM/PROJECT TYPE** | Baseline Infor Other | | |
| **OPERABLE UNIT** | NONE | | |
| **REQUESTER** | SYDNOR, HA | **CHARGE CODES** | |
| **TASK MANAGER** | WATSON, DJ | | |
| **PROJECT COORDINATOR** | TRENT, SJ | | |
| **ESTIMATED START DATE** | 11/14/2007 | **SAMPLE AREA** | 200 East |
| **ESTIMATED COMPLETION DATE** | 12/14/2007 | **MATRIX** | SOIL |
| **ESTIMATED NUMBER OF SAMPLES** | 27 | | |
| **SAMPLING ORGANIZATIONS** | | | |

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

Primary / PNNL Building 325 / 8N / 45 Days / 45 Days / Summary

**SAF COMMENT**

** Sample Media is Soil (SO).
** Collection Purpose is Characterization (C).
** The well IDs for these boreholes are C5944, C5945, C5946, C5947, C5948, C5949, C5950, C5951, C5952, C5953, C5954, C5955, C5956, C5957, C5958, C5959, C5960, C5961, C5962, C5963, C5964, C5965 and C5966.

**SAF REVISION COMMENT**

**COC COMMENT**

** Each sample will consist of 3 sample liners.

DATE OF PRINT 12/11/2007 SAF STATUS NONE STATUS DATE PAGE 1 of 2.

# CH2M Hill Group
## SAMPLING AUTHORIZATION FORM

**SAF NUM** V08-001 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 **REV** 0

### Field Sampling Requirements

**Laboratory: PNNL Building 325** **Matrix: SOIL**

| Parameter / Analysis | Reference Method | Container / Volume | VolReq | Preservation | Holding Times |
|---|---|---|---|---|---|
| IC Anions - 9056 (Tier 1) | 9056_ANIONS_IC | Liner 1000 g | Full QC | Cool~4C | 28 Days/48 Hours |
| TOC - 9060 (Tier 1)<br>Total carbon, Total organic carbon | 9060_TOC | | Full QC | | 28 Days |
| Conductivity - 9050 (Tier 1) | 120.1_CONDUCT | | Full QC | | 28 Days |
| pH (Soil) - 9045 (Tier 1) | 9045_PH | | Full QC | | ASAP |
| GAMMA ENERGY ANALYSIS (Tier 1) | GAMMA_GS | | Full QC | | 6 Months |
| Actinides ICPMS (Tier 1)<br>Technetium-99 | RADISOTOPES_ICPMS | | Full QC | | 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

DATE OF PRINT 12/11/2007 SAF STATUS NONE STATUS DATE PAGE 2 of 2

# CH2M Hill Group
# SAMPLING AUTHORIZATION FORM

**SAF NUM** V08-002 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 - QC Samples **REV** 0

| | | | |
|---|---|---|---|
| **PROJECT** | C-Tank Farms | | |
| **PROGRAM/PROJECT TYPE** | Baseline Infor Other | | |
| **OPERABLE UNIT** | NONE | | |
| **REQUESTER** | SYDNOR, HA | **CHARGE CODES** | |
| **TASK MANAGER** | WATSON, DJ | | |
| **PROJECT COORDINATOR** | TRENT, SJ | | |
| **ESTIMATED START DATE** | 11/14/2007 | **SAMPLE AREA** | 200 East |
| **ESTIMATED COMPLETION DATE** | 12/14/2007 | **MATRIX** | SOIL |
| **ESTIMATED NUMBER OF SAMPLES** | 2 | | |
| **SAMPLING ORGANIZATIONS** | | | |

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

Primary / PNNL Building 325 / 8N / 45 Days / 45 Days / Summary

**SAF COMMENT**

** Collection Purpose is Characterization (C).
** The well IDs for these boreholes are C5944, C5945, C5946, C5947, C5948, C5949, C5950, C5951, C5952, C5953, C5954, C5955, C5956, C5957, C5958, C5959, C5960, C5961, C5962, C5963, C5964, C5965 and C5966.

**SAF REVISION COMMENT**

**COC COMMENT**

** Rinsate Samples

DATE OF PRINT 12/11/2007 SAF STATUS NONE STATUS DATE PAGE 1 of 2

# CH2M Hill Group
## SAMPLING AUTHORIZATION FORM

**SAF NUM** V08-002 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 - QC Samples **REV** 0

### Field Sampling Requirements

**Laboratory:** **PNNL Building 325** **Matrix: SOIL**

| Parameter / Analysis | Reference Method | Container / Volume | VolReq | Preservation | Holding Times |
|---|---|---|---|---|---|
| IC Anions - 9056 (Tier 1) | 9056_ANIONS_IC | Liner 1000 g | Full QC | Cool~4C | 28 Days/48 Hours |
| TOC - 9060 (Tier 1)<br>Total carbon, Total organic carbon | 9060_TOC | | Full QC | | 28 Days |
| Conductivity - 9050 (Tier 1) | 120.1_CONDUCT | | Full QC | | 28 Days |
| pH (Soil) - 9045 (Tier 1) | 9045_PH | | Full QC | | ASAP |
| GAMMA ENERGY ANALYSIS (Tier 1) | GAMMA_GS | | Full QC | | 6 Months |
| Actinides ICPMS (Tier 1)<br>Technetium-99 | RADISOTOPES_ICPMS | | Full QC | | 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

DATE OF PRINT 12/11/2007 SAF STATUS NONE STATUS DATE PAGE 2 of 2

Project 241C Unplanned Release Direct Push — Notebook No. DTS-SAWS-1497 — 79

Continues from Page 78

-308 0845 went to 2704 HV To Rec Pump co362 Rev 6 (Late Entry)
0900 Sampler Driven 138' - 140'
0920 onsite Borehole C5960
All samples have been delivered to 325 Lab

| | | | | |
|---|---|---|---|---|
| DATE: 3-3-08 TIME: 0900 | | SAMPLE #: B1TNK9 | | |
| COC#: V08-001-024 BOREHOLE #: C5960 | | Interval: 138'-140' | | |
| | Shoe | A | B | C |
| Depth | 140' - 139.5' | 139.5' - 139' | 139' - 138.5' | 138.5' - 138' |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: Fine salt & pepper slight moist | | | | |

One Form Attached this page

4-15-08

Continued on Page

Read and Understood By

M. Hall — Signed — 4-15-08 — Date — Signed — Date

Project 241-C UNPLANNED RELEASE DIRECT PUSH
Continues from Page ∅
Notebook No. DTS-SAWS-H97
69

SAF# 507-098/V08-001 12-12-07/

LOCATION: WEST SIDE OF C-FARM, 200 EAST AREA CACN: 121800 ES10

PERSONNEL: K. OLSON > DRILLERS
M. PASSEY
M. WALKUP - PIC
P. TEMPLETON - HPT
S. SNOOK > TANK FARM (NCO'S)
I. VILLARREL
J. HOGAN > SAMPLERS (NCO'S)
F. HALL

0915 ON site, signed ATTENDENCE sheet + AJHA
0925 WENT to 2704 HV (SMURF) to ACE - RWP CO 362 REV6
0935 ON site BORE HOLE - #C5952
1002 PUSHED SAMPLER 9.5' - 11.5'
SHOE AND 10% of SLEEVE Filled, SAMPLER actually driven 9.5 - 10.0, M. WALKUP (PIC) notified HAROLD SYDNOR - CHG Project mgr. made the decession to push A secon sampler

| DATE: 12-12-07 | TIME: 1002 | SAMPLE #: BIRTF8 | | |
|---|---|---|---|---|
| COC#: V08-001-001 | BOREHOLE #: C5952 | Interval: 9.5'-11.5' | | |
| | shoe | A | B | C |
| Depth | 9.5-10.0 | 10.0-10.5 | 10.5-11.0 | 11.0-11.5 |
| % RECOVERY | 100% | 0 | 0 | 0 |
| COMMENTS: | Sample consist Rock and gravely sands | | | |

12-12-07

10-21-12-07

ONE FORM ATTACHED THIS PAGE

1055 DROVE second SAMPLER 11.5' - 13.5'
nothing was present in shoe, LINER A had 75% RECOVERY.

Continued on Page 70

Read and Understood By

F.M. HALL 12-12-07
Signed Date Signed Date

Project 241 C UNPLANNED RELEASE DIRECT PUSH Notebook No. DTS - SAWS - H97

Continues from Page 69

1115 Left Drill site enroute to 6269 to place samples in cooler

| DATE: 12-12-07 | TIME: 1055 | SAMPLE #: B1RTF9A | | |
|---|---|---|---|---|
| COC#: V08-001-002 | BOREHOLE #: C5952 | Interval: 11.5 - 13.5 | | |
| | shoe | A | B | C |
| Depth | 11.5 - 12.0 | 12.0 - 12.5 | 12.5 - 13.0 | 13.0 - 13.5 |
| % RECOVERY | 0 | 75 % | 0 | 0 |
| COMMENTS: Sample consist of small Rock and Gravely sands | | | | |

12-12-07

12-12-07

12-13-07

1300 onsite Bore Hole #C5952A

1315 Pushed sampler 9.5' - 11.5'

Shoe had 10% nothing recovered in sleeves, sampler actually driven 9.5' - 10.0'. K. Olson - Driller contacted H. Sydnor CHG project mgr. made decession to drive to 14.0' then sample

1400 Left Drill site enroute to 6269 to place samples in cooler

| DATE: 12-13-07 | TIME: 1315 | SAMPLE #: B1RTH0 | | |
|---|---|---|---|---|
| COC#: V08-001-003 | BOREHOLE #: C5952A | Interval: 9.5' - 11.5' | | |
| | shoe | A | B | C |
| Depth | 9.5 - 10.0 | 10.0 - 10.5 | 10.5 - 11.0 | 11.0 - 11.5 |
| % RECOVERY | 10% | 0 | 0 | 0 |
| COMMENTS: Sample consist of small Rock and Gravely sands. Sampler pushed 9.5-10 and Plugged. | | | | |

12-13-07

12-13-07

two Forms attached this page

Continued on Page 71

Read and Understood By

M. Hall 1-2-08

Signed Date Signed

Project 241C UNPLANNED RELEASE DIRECT PUSH Notebook No. DTS-SAWS-H97 17

Continues from Page 70

12-17-07

0900 KB HUISE ACED AT 2704 HV

0910 ONSITE BOREHOLE #C5952A

0915 PUSHED SAMPLER 14'-15'

SHOE HAD 100%, "A" LINER 100%

| DATE: 12/17/07 TIME: 0914 | | SAMPLE #: BIRTH1 | | |
|---|---|---|---|---|
| COC#: V08-001-003 BOREHOLE #: C5952A | | Interval: 14'-15' | | |
| | Shoe | A | B | C |
| Depth | 14.5'-15' | 14'-14.5 | | |
| % RECOVERY | 100 | 100 | 0 | 0 |
| COMMENTS: Gravel | | | | |

1015 LEFT DRILL SITE ENROUTE to 6269 to place samples in cooler

12-20-07

0950 ON site BOREHOLE #C5952A

0900 SAMPLER DRIVEN 60'-62'

0955 collected SAMPLE 100% RECOVERY

| DATE: 12-20 TIME: 0900 | | SAMPLE #: BIRTH2 | | |
|---|---|---|---|---|
| COC#: V08-001-005 BOREHOLE #: C5952A | | Interval: 60'-62' | | |
| | shoe | A | B | C |
| Depth | 62'-61.5' | 61.5'-61.0' | 61.0'-60.5' | 60.5'-60.0 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: GRAVELLY SANDS, SOME MOISTURE IN TOP OF CLINER < DETECTABLE | | | | |

1010 LEFT DRILL SITE ENROUTE to 6269 to place samples in cooler

12-21-07

0955 SAMPLER DRIVEN 80'-82'

0915 ON site BOREHOLE #C5952A

0930 COLLECTED SAMPLE 100% RECOVERY

1-2-08

Continued on Page 72

Read and Understood By

FM Hall 1-2-08

Signed Date Signed Date

2

Project 241C UNPLANNED RELEASE DIRECT PUSH Notebook No. DTS-SAWS-H97

Continues from Page 71

| | | | | |
|---|---|---|---|---|
| DATE: 12/21/07 TIME: 0855 | | SAMPLE #: BIRTH3 | | |
| COC#: V08-001-006 BOREHOLE #: C5952A Interval: 80'-82' | | | | |
| | Shoe | A | B | C |
| Depth | 81.5-82 | 81-81.5 | 80.5-81 | 80-80.5 |
| % RECOVERY | 100 | 100 | 100 | 100 |
| COMMENTS: Salt + Pepper COARSE SAND AND GRAVEL | | | | |

1010 LEFT DRILL SITE ENROUTE TO 6269 TO PLACE SAMPLES IN COOLER

12-31-07

1020 ON site Borehole # C5952A

1030 SAMPLER DRIVEN 100'-102' 100% RECOVERY

| | | | | |
|---|---|---|---|---|
| DATE: 12/31/07 TIME: 1030 | | SAMPLE #: BIRYR7 | | |
| COC#: V08-001-007 BOREHOLE #: C5952A Interval: 100-102' | | | | |
| | Shoe | A | B | C |
| Depth | 101.5-102 | 101-101.5 | 100.5-101 | 100-100.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: LINERS B + C MOIST, SAND + GRAVEL | | | | |

1130 LEFT DRILL site enroute to 6269 to place samples in cooler

1-2-08

1045 SAMPLES FROM Borehole # C5952A delivered to 325 lab

1-3-08

1040 SAMPLER DRIVEN 118'-120'

1145 went to 2704 HU to ACE RWP CO 362 REUG

1200 onsite collected sample 100% RECOVERY

1200 Communicated with driller on next push

| | | | | |
|---|---|---|---|---|
| DATE: 1-3-08 TIME: 1040 | | SAMPLE #: BIRYR8 | | |
| COC#: V08-001-008 BOREHOLE #: C5952A Interval: 118'-120' | | | | |
| | Shoe | A | B | C |
| Depth | 119.5-120 | 119-119.5 | 118.5-119 | 118-118.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: Shoe SAND + GRAVEL<br>Liners A, B, C SAND, moist | | | | |

THREE Forms attached this page

Continued on Page 73

Read and Understood By

EM Hall 1-17-08

Signed Date Signed Date

Project 241C Unplanned Release Direct Push  Notebook No. DTS-SAWS-N97

Continues from Page 72

1230 Left Drill site Enroute to 6269 To place samples in cooler

1-7-08

1305 Samples From Borehole # C5952A delivered to 325 Lab

1-7-08

0915 Sampler Driven 100% Recovery

0930 went to 2704 HU to Ace RWP C0362 Rev 6

0945 onsite Borehole C5952A 140'-142'

1030 Left Drill site Enroute to 325 lab

| DATE: 1-7-08 | TIME: 0915 | SAMPLE #: BIRYR9 | | |
|---|---|---|---|---|
| COC#: V08-001-009 | BOREHOLE #: C5952A | Interval: 140'-142' | | |
| | Shoe | A | B | C |
| Depth | 141.5-142 | 141-141.5 | 140.5-141 | 140-140.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | Sandy silt + pepper granules in liners A B + C, C liner slightly moist, Shoe compacted clay. | | | |

1-8-08

1120 Sampler Driven 70% Recovery

1130 onsite Borehole # C5958 10.5'-12.5'

| DATE: 1-8-08 | TIME: 11:20 | SAMPLE #: BIRYT0 | | |
|---|---|---|---|---|
| COC#: V08-001-010 | BOREHOLE #: C5958 | Interval: 10.5'-12.5' | | |
| | Shoe | A | B | C |
| Depth | 11.5-12 | 11-11.5 | 10.5-11 | |
| % RECOVERY | 100% | 100% | 100% | 0 |
| COMMENTS: | Rock + sandy gravel, moist | | | |

1230 Left Drill site Enroute to 6269 To place samples in cooler

1-10-08

0945 onsite Borehole # C5958 54'-56'

0915 Sampler Driven 90% Recovery

1-14-09

TOD Forms Attached This Page

Continued on Page 74

Read and Understood By

F.M. Hall  1-14-09

Signed  Date

Project 241C Unplanned Release Direct Push Notebook No. DTS-SAWS-H97
Continues from Page 73

| DATE: 1-10-08 TIME: 0915 | | SAMPLE #: | | |
|---|---|---|---|---|
| COC#: V08-001-011 | BOREHOLE #: C5958 | | Interval: 54'-56 | |
| | Shoe | A | B | C |
| Depth | 55.6-56 | 55-55.6 | 54.5-55 | 54-54.5 |
| % RECOVERY | 100% | 100% | 100% | 80% |
| COMMENTS: | SANDY / GRAVEL slightly moist | | | |

1030 LEFT DRILL site ENROUTE to 6269 TO PLACE SAMPLE in cooler

1-14-08

0800 DID Equipment Blank. Using DI water NCO sampler poured DI over cleaned Equipment to be used at Drill site. Contents was captured in A clean 1 L poly Bottle.

1030 SAMPLES FROM Borehole #C5958 delivered to 325 lab

1-15-08

0830 SAMPLER DRIVEN 79'-81'

1000 ONSITE Borehole #C5958 collected sample 100% Recovery

1130 LEFT DRILL site ENROUTE to 6269 to place samples in cooler

| DATE: 1-15-08 TIME: 0830 | | SAMPLE #: B1T2P2 | | |
|---|---|---|---|---|
| COC#: V08-001-012 | BOREHOLE #: C5958 | | Interval: 79'-81' | |
| | Shoe | A | B | C |
| Depth | 80.5-81 | 80-80.5 | 79.5-80 | 79-79.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | SANDY / GRAVEL moist, Shoe compacted CLAY SAND / GRAVEL DRY | | | |

1-16-08

0950 onsite Borehole #C5958 collected sample 75% Recovery

0845 SAMPLER DRIVEN 100'-102'

| DATE: 1-16-08 TIME: 0845 | | SAMPLE #: B1T2P3 | | |
|---|---|---|---|---|
| COC#: V08-001-013 | BOREHOLE #: C5958 | | Interval: 100-102 | |
| | Shoe | A | B | C |
| Depth | -0- | 100% | 100% | 100% |
| % RECOVERY | | 101-101.5 | 100.5-101 | 100-100.5 |
| COMMENTS: | 75% Recovery Shoe empty DRY SAND / GRAVEL | | | |

75

THREE FORMS ATTACHED THIS PAGE

Read and Understood By

H. Hall 1-22-08

Signed Date Signed Date

Project 241C Unplanned Release Direct Push Notebook No. DTS-SAWS-H97

Continues from Page 74

1-16-08 continue
1030 OFF Drill site Enroute to 325 LAB to deliver samples
1-17-08
0920 sampler Driven 114'-116'
1100 onsite Bore Hole C5958 100% RECOVERY

| DATE: 1-17-08 TIME: 0920 | | SAMPLE #: B1T2P4 | | |
|---|---|---|---|---|
| COC#: V08-001-014 | BOREHOLE #: C5958 | | Interval: 114'-116 | |
| | Shoe | A | B | C |
| Depth | 115.5-116 | 115-115.5 | 114.5-115 | 114-114.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | 100% Recovery Dry sand/gravel | | | |

1145 LEFT Drillsite Enroute to 6269 to place samples in cooler
1105 sampler Driven 116'-118'
1400 onsite 100% RECOVERY

| DATE: 1-17-08 TIME: 1105 | | SAMPLE #: | | |
|---|---|---|---|---|
| COC#: V08-001-015 | BOREHOLE #: C5958 | | Interval: 116'-118' | |
| | Shoe | A | B | C |
| Depth | 117.5-118 | 117-117.5 | 116.5-117 | 116-116.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | Sandy / gravel Dry | | | |

1430 LEFT Drillsite Enroute to 6269 to place samples in cooler
1-21-08
0940 sampler Driven 134.5'-136.5
1100 onsite 100% RECOVERY

| DATE: 1-21-08 TIME: | | SAMPLE #: B1T2P6 | | |
|---|---|---|---|---|
| COC#: V08-001-016 | BOREHOLE #: C5958 | | Interval: 134.5'-136.5' | |
| | Shoe | A | B | C |
| Depth | 136-136.5 | 135.5-136 | 135-135.5 | 134.5-135 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | Sandy / gravel Dry | | | |

1300 LeFT Drill site Enroute to 6269 to gather all samples To be shipped to 325 Lab
1335 Samples sample delivered to 325 Lab
THREE Forms Attached this page

Continued on Page 76

Read and Understood By

T.M. Hall 1-21-08
Signed Date Signed Date

76

Project 241C Unplanned Release Direct Push Notebook No. DT's-SAWS-H97

Continues from Page 75

2-4-08

1300 Sampler Driven 18'-20'

1410 Went to 2704 N.V. to Ace Rwp C0362 Reg 6

1420 onsite Borehole C5960

| DATE: 2-4-08 TIME: 1300 | | SAMPLE #: B1T2P7 | | |
|---|---|---|---|---|
| COC#: V08-001-017 BOREHOLE #: C5960 | | Interval: 18'-20' | | |
| | Shoe | A | B | C |
| Depth | 20-19.5 | 19-19.5 | 18.5-19 | 18-18.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: wet sandy/gravel - salt + pepper | | | | |

1515 Left Drill site enroute to 6269 to place samples in cooler

1530 samples have been place in cooler

2-5-08

0940 Sampler Driven 41.5'-43.5'

1015 onsite Borehole C5960

| DATE: 2-5-08 TIME: 0940 | | SAMPLE #: B1T2P8 | | |
|---|---|---|---|---|
| COC#: V08-001-018 BOREHOLE #: C5960 | | Interval: 41.5'-43.5 | | |
| | Shoe | A | B | C |
| Depth | 43-43.5 | 42.5-43 | 42-42.5 | 41.5-42 |
| % RECOVERY | 50% | 100% | 100% | 90% |
| COMMENTS: Sandy/gravel salt + pepper Slightly moist | | | | |

1115 Left Drill site to collect samples in cooler at 6269

1300 Enroute to 325 Lab to deliver samples

1350 samples delivered to 325

1415 Enroute 6269 Bldg to prep for Drill site next samples to be taken at Borehole C5960

3-11-08

Two Forms attached this page

Continued on Page 77

Read and Understood By

M. Hall

Signed Date

Project 241C UNPLANNED Release DIRECT PUSH
Continues from Page 76
Notebook No. DT3-SAWS-H97 77

2-6-08
0920 SAMPLER DRIVEN 59'-61'
0930 ONSITE BOREHOLE C5960

| DATE: 2-6-08 | TIME: 0920 | SAMPLE #: B1T2P9 | | |
|---|---|---|---|---|
| COC#: V08-001-019 | BOREHOLE #: C5960 | Interval: 59'-61' | | |
| | Shoe | A | B | C |
| Depth | 60.5-61 | 60-60.5 | 59.5-60 | 59-59.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | SANDY / GRAVEL SALT + PEPPER, SLIGHTLY MOIST | | | |

1015 LEFT DRILL SITE ENROUTE to 6269 to place samples IN cooler
1030 SAMPLES placed in cooler
2-26-08
0900 WENT to 2704 HV TO ACE RWP C0362 REV 6
0920 SAMPLER DRIVEN 83'-85'
0930 ONSITE BOREHOLE C5960

| DATE: 2-26-08 | TIME: 0920 | SAMPLE #: B1T2R0 | | |
|---|---|---|---|---|
| COC#: V08-001-020 | BOREHOLE #: C5960 | Interval: 83'-85' | | |
| | Shoe | A | B | C |
| Depth | 84.5-85 | 84-84.5 | 83.5-84 | 83-83.5 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | 100% RECOVERY SALT + PEPER GRAVEL SLIGHTLY MOIST | | | |

1000 LEFT DRILL SITE ENROUTE to 6269 to place samples IN cooler
1015 SAMPLES placed IN cooler
2-27-08
0900 WENT to 2704 HV TO ACE RWP C0362 REV 6
0920 SAMPLER DRIVEN 98'-100'
0930 ONSITE BOREHOLE C5960

3-11-08

Continued on Page 78

Read and Understood By

E.M. HILL
Signed Date Signed Date

78

Project 241C Unplanned Release Direct Push Notebook No. DTS-SAWS-M97

Continue from Page 77

| DATE: 2-27-08 | TIME: 0915 | SAMPLE #: B1TNK6 | | |
|---|---|---|---|---|
| COC#: V08-001-021 | BOREHOLE #: C5960 | Interval: 98'-100' | | |
| | shoe | A | B | C |
| Depth | 100-99.5 | 99.5-99.0 | 99.0-98.5 | 98.5-98.0 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | | | | |
| SANDY GRAVELS, SOME MOISTURE | | | | |
| NON DETECTABLE RAD | | | | |

1000 Left Drill site enroute to 6269 to place samples in cooler

2-28-08

1015 Sampler Driven 118'-117'

1030 on site Bore Hole C5960

| DATE: 2-28-8 | TIME: 1015 | SAMPLE #: B1TNK7 | | |
|---|---|---|---|---|
| COC#: V08-001-022 | BOREHOLE #: C5960 | Interval: 115'-117' | | |
| | Shoe | A | B | C |
| Depth | 117 - 116.5 | 116.5 - 116 | 116 - 115.5 | 115.5 - 115 |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | Salt + Pepper / sand gravel DRY | | | |

1130 completed capturing samples awaiting next sampler to be Driven

1145 Sampler Driven 117'-119'

| DATE: 2-28-08 | TIME: 1145 | SAMPLE #: B1TNK8 | | |
|---|---|---|---|---|
| COC#: V08-001-023 | BOREHOLE #: C5960 | Interval: 117'-119' | | |
| | Shoe | A | B | C |
| Depth | 119 - 118.5 | 118.5 - 118 | 118 - 117.5 | 117.5 - 117' |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: | salt & pepper / sandy DRY | | | |

1215 Left Drill site enroute to 6269 to collect all samples

1230 Collected all samples enroute to 325 lab to deliver samples

1300 Samples Delivered to 325 lab

This concludes unplanned release Direct push out side c-farm

THREE Forms attached This page

Continued on Page Ø

Read and Understood By

F.M. Hall

Signed Date Signed Date

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-001 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>HALL, FM | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE SN<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5952 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO.<br>SML-441 | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>9.5'-10.5' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RTF8 | | S | 12-12-07 | 1002 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| E.M. HALL | 1630 DEC 17 2007 | Dave Williamson Fluor Hanford | 1630 DEC 17 2007 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| Dave Williamson Fluor Hanford | DEC 17 2007 1400 | C. Irvin | 1400 DEC 17 2007 |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}
Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-002 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>HALL, FM | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE BN<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5952 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO.<br>SML-441 | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>12.0' – 12.5' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RTF9A | | S | 12-12-07 | 1055 | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| F.M. Hall | DEC 17 2007 1400 | Dave Williamson<br>Fluor Hanford | DEC 17 2007 1400 |
| Dave Williamson<br>Fluor Hanford | DEC 17 2007 1400 | C. Iovin | DEC 17 2007 1400 |
| | | | |
| | | | |

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-003 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>HALL, FM | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5952A | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO.<br>SML-441 | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>9.5'-10.0' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RTH0 | | S | 12-13-07 | 1315 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool-4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>F.M. Hall | DATE/TIME 1030<br>DEC 17 2007 | RECEIVED BY/STORED IN<br>Dave Williamson<br>Fluor Hanford | DATE/TIME 1630<br>DEC 17 2007 |
| RELINQUISHED BY/REMOVED FROM<br>Dave Williamson<br>Fluor Hanford | DATE/TIME 1630<br>DEC 17 2007 | RECEIVED BY/STORED IN<br>Cristian Jovi | DATE/TIME 1430<br>DEC 17 2007 |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) (TOC, TOTCARB) Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) (Tc-99)

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-004 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: KB Hulse | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: Borehole C5952A | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY: ☐ | |
| ICE CHEST NO.: GML-441 | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 14'-15' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RTH1 | | S | 12/17/07 | 0914 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS 14'-14.5' | Cool-4C |
| B1RTH1A | | S | 12/17/07 | 0919 | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS 14.5'-15' | Cool-4C |
| ~~B1RTH1B~~ | | S | 12/17/07 | | ~~1X1000g Liner~~ | ~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~ | Cool-4C |
| ~~B1RTH1C~~ | | S | | | ~~1X1000g Liner~~ | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool-4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| CHAIN OF POSSESSION | SIGN/ PRINT NAMES | |
|---|---|---|
| RELINQUISHED BY/REMOVED FROM: KB Hulse | DATE/TIME: DEC 17 2007 1210 | RECEIVED BY/STORED IN: Dave Williamson, Fluor Hanford | DATE/TIME: DEC 17 2007 1210 |
| RELINQUISHED BY/REMOVED FROM: Dave Williamson, Fluor Hanford | DATE/TIME: DEC 17 2007 | RECEIVED BY/STORED IN: Cristian Jovar | DATE/TIME: DEC 17 2007 1422 |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-005 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: Fluor Hanford J. G. HOGAN | COMPANY CONTACT: SYONOR, HA | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND |
| SAMPLING LOCATION: C595ZA | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-GAWS-H97 | ACTUAL SAMPLE DEPTH: 60' - 62' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RTH2 | | S | 12-20-07 | 0900 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool-4C |
| B1RTH2A | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1)-IN SPECIAL INSTRUCTIONS | Cool-4C |
| B1RTH2B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool-4C |
| B1RTH2C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool-4C |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM: Fluor Hanford J. G. HOGAN | DATE/TIME: 12/20/07 1100 | RECEIVED BY/STORED IN: KB Hulse | DATE/TIME: 12/20/07 1100 |
| RELINQUISHED BY/REMOVED FROM: KB Hulse | DATE/TIME: 12/20/07 1235 | RECEIVED BY/STORED IN: Chris F. Brown | DATE/TIME: 12/20/07 12:35 |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-006 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>KB Hulse | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5952A | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO.<br>SML-600 | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>80'-82' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RTH3 | | S | 12/21/07 | 0855 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RTH3A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RTH3B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RTH3C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| KB Hulse [signature] | 12/21/07 11:50 | Dennis Smith [signature] | 12/21/07 11:50 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) (TOC, TOTCARB) Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) (Tc-99)

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-801-087 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>KB Hulse | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE SN | DATA TURNAROUND |
| SAMPLING LOCATION 1-7-08<br>B1RYR7 C5952A | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>100-102 | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

| MATRIX*<br>OL = OTHER LIQUID<br>OS = OTHER SOLID<br>S = SOIL<br>W = WATER | SPECIAL HANDLING AND/OR STORAGE | POSSIBLE SAMPLE HAZARDS/ REMARKS<br>Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993) |
|---|---|---|

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RYR7 | | S | 12/31/07 | 1030 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR7A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR7B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR7C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>KB Hulse | DATE/TIME<br>0940<br>1-2-08 | RECEIVED BY/STORED IN<br>FM Hall | DATE/TIME<br>0940<br>1-2-08 | ** Each sample will consist of 3 sample liners.<br>(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99} |
| RELINQUISHED BY/REMOVED FROM<br>FM Hall | DATE/TIME<br>1045<br>1-2-08 | RECEIVED BY/STORED IN<br>C. Jovin | DATE/TIME<br>1045<br>1-2-08 | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-008 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: FM Hall | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND |
| SAMPLING LOCATION: C5952A | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 118'-120' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: FMHL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RYR8 | | S | 1-3-08 | 1040 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR8A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR8B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR8C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM: FM Hall | DATE/TIME: 1-3-08 1300 | RECEIVED BY/STORED IN: J.G. Hogan Fluor Hanford | DATE/TIME: 1-3-08 1300 |
| RELINQUISHED BY/REMOVED FROM: J.G. Hogan Fluor Hanford | DATE/TIME: JAN 04 2008 1305 | RECEIVED BY/STORED IN: C. Iovin | DATE/TIME: 1/4/08 1305 |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-009 | PAGE 1 OF |
|---|---|---|---|---|---|
| COLLECTOR | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N | DATA TURNAROUND |
| SAMPLING LOCATION ~~C~~ 1-7-08<br>~~C~~ B1RYR9 C5952A | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H87 | ACTUAL SAMPLE DEPTH<br>140'-142' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

| MATRIX*<br>OL = OTHER LIQUID<br>OS = OTHER SOLID<br>S = SOIL<br>W = WATER | SPECIAL HANDLING AND/OR STORAGE | POSSIBLE SAMPLE HAZARDS/ REMARKS<br>Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993) |
|---|---|---|

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RYR9 | | S | 1-7-08 | 0915 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR9A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR9B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYR9C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| | | | | | | | |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>FM Hall | DATE/TIME<br>1205<br>1-7-08 | RECEIVED BY/STORED IN<br>M. Valenta/M. Valo | DATE/TIME<br>1205<br>1-7-08 | ** Each sample will consist of 3 sample liners.<br>(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}<br>Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99} |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |

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

CH2M Hill Group

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

V08-001-010 PAGE 1 OF 1

| | | | | | |
|---|---|---|---|---|---|
| COLLECTOR: F M Hill | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: C5958 | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAP NO.: V08-001 | AIR QUALITY: | |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 10.5' - 12.5' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1RYT0 | | S | 1-9-08 | 1120 | 1X500mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYT0A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1RYT0B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| ~~B1RYT0C~~ | | ~~S~~ | | | ~~1X1000g Liner~~ | ~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~ | ~~Cool~4C~~ |

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

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| F M Hill | 1-9-08 1030 | C. Irwin | 1-9-08 1030 |
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**SPECIAL INSTRUCTIONS**
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}
Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-002-001 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>F.M. HAIL | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY -- | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C-TANK C5958 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 - QC Samples | | SAF NO.<br>V08-002 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAMP-497 | ACTUAL SAMPLE DEPTH | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T655 | | S | 1-14-08 | 0900 | 1X1000mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool-4C |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>F.M. HAIL | DATE/TIME<br>1-14-08 1030 | RECEIVED BY/STORED IN<br>C. IRVIN | DATE/TIME<br>1-14-08 1030 | ** Rinsate Samples<br>(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}<br>Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99} |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-011 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: F M HALL | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND |
| SAMPLING LOCATION: C5958 | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY: ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P1 | | S | 1-10-08 | 0915 | 1X250mL Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P1A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P1B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P1C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| F M HALL | 1030 1-14-08 | C JOVIN | 1030 1-14-08 |
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SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}
Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-012 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM Hall | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5958 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>79'-81' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P2 | | S | 1-15-08 | 0830 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P2A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P2B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P2C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | SIGN/ PRINT NAMES | |
|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>FM Hall 1-16-08 1130 | RECEIVED BY/STORED IN<br>KB Hulse 1-16-08 1130 | |
| RELINQUISHED BY/REMOVED FROM<br>KB Hulse 1-16-08 1242 | RECEIVED BY/STORED IN<br>M. Valenta/M. Valto 1/16/08 1242 | |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | |

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M HILL Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-013 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: KB Hulse | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO.: 373-3967 | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND |
| SAMPLING LOCATION: C5958 | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 100-101.5 | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| ~~B1T2P3~~ | | ~~S~~ | ~~1-16-08~~ | ~~1-16-08~~ | ~~1X250mL P~~ | ~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~ | Cool~4C |
| B1T2P3A | | S | 1-16-08 | 0845 | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P3B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P3C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM: KB Hulse KB Hulse | DATE/TIME: 1-16-08 1242 | RECEIVED BY/STORED IN: M. Valenta/ M. Valo | DATE/TIME: 1/16/08 1242 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-014 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: F M Hall | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO.: 373-3967 | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: C 595B | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY: ☐ | |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 114'-116' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P4 | | S | 1-17-08 | 0920 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P4A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P4B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P4C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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CHAIN OF POSSESSION — SIGN/ PRINT NAMES

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| F M Hall | 1-21-08 A335 | M. Vauma/M. Valo | 1-21-08 1335 |
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SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-015 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM Hall | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE BN<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5958 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>OTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>116'-118' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

| MATRIX*<br>OL = OTHER LIQUID<br>OS = OTHER SOLID<br>S = SOIL<br>W = WATER | SPECIAL HANDLING AND/OR STORAGE | POSSIBLE SAMPLE HAZARDS/ REMARKS<br>Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993) |
|---|---|---|

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P5 | | S | 1-17-08 | 1105 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P5A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P5B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P5C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | SIGN/ PRINT NAMES | SPECIAL INSTRUCTIONS |
|---|---|---|
| RELINQUISHED BY/REMOVED FROM: FM HALL [signature] DATE/TIME: 1-21-08 1335 | RECEIVED BY/STORED IN: M. Valdez / M. Valdez DATE/TIME: 1-21-08 1335 | ** Each sample will consist of 3 sample liners.<br>(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99} |
| RELINQUISHED BY/REMOVED FROM: DATE/TIME: | RECEIVED BY/STORED IN: DATE/TIME: | |
| RELINQUISHED BY/REMOVED FROM: DATE/TIME: | RECEIVED BY/STORED IN: DATE/TIME: | |
| RELINQUISHED BY/REMOVED FROM: DATE/TIME: | RECEIVED BY/STORED IN: DATE/TIME: | |

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-016 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM Hall | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE SN<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C 5958 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>134.5'-136.5' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P6 | | S | 1-21-08 | 0940 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P6A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P6B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P6C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM | DATE/TIME 1335 | RECEIVED BY/STORED IN | DATE/TIME 1335 |
| FM Hall | 1-21-08 | M. Vokuna / M. Vallo | 1-21-08 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}
Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M HILL Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-017 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>F m Hall | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE BN<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5960 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>18'-20' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P7 | | S | 2-4-08 | 1300 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P7A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P7B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P7C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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CHAIN OF POSSESSION — SIGN/ PRINT NAMES

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| F m Hall | 2-5-08 1330 | C. Iovin | 2-5-08 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 |

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-081-018 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: FM Hall | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO.: 373-3967 | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: C5960 | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY: ☐ | |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 41.5' - 43.5' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P8 | | S | 2-5-08 | 0940 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P8A | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P8B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P8C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM: FM Hall | DATE/TIME: 2-5-08 1350 | RECEIVED BY/STORED IN: C. Iovin | DATE/TIME: 2-5-08 1350 | ** Each sample will consist of 3 sample liners. (1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99} |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-019 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>F M HALL | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N | DATA TURNAROUND |
| SAMPLING LOCATION | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>59'-61' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2P9 | | S | 2-6-08 | 0920 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P9A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P9B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2P9C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM | DATE/TIME 1030 | RECEIVED BY/STORED IN | DATE/TIME 1030 |
| F.M. Hall | 2-7-08 | C. Iovin | 2-7-08 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}
Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-020 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: FM HALL | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO.: 373-3967 | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: BN | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: C5960 | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY: ☐ | |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 83'-85' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1T2R0 | | S | 2-26-08 | 0920 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2R0A | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2R0B | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1T2R0C | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | SIGN/ PRINT NAMES | |
|---|---|---|
| RELINQUISHED BY/REMOVED FROM: FM HALL [signature] | DATE/TIME: 2-28-08 1330 | RECEIVED BY/STORED IN: W. Valencia / M. Valio |
| | DATE/TIME: 2-28-08 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 |

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}
Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-021 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C 5960 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>98' - 100' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO.<br>N/A | | BILL OF LADING/AIR BILL NO.<br>N/A | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1TNK6 | | S | 2-27-08 | 0915 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK6A | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK6B | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK6C | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>J.G. Hogan<br>Fluor Hanford | DATE/TIME<br>2-28-08 1250 | RECEIVED BY/STORED IN<br>F M Hall | DATE/TIME<br>2-28-08 1250 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME<br>2-28-08 | RECEIVED BY/STORED IN<br>F M H | DATE/TIME<br>2-28-08 |
| RELINQUISHED BY/REMOVED FROM<br>F M Hall | DATE/TIME<br>2-28-08 | RECEIVED BY/STORED IN<br>M. Valenta / M. Valen | DATE/TIME<br>2-28-08 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-022 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM Hall | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N | DATA TURNAROUND |
| SAMPLING LOCATION<br>C5960 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>115'-117' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1TNK7 | | S | 2-28-08 | 1015 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK7A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK7B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK7C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| | | | | | | | |
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| | | | | | | | |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>FM Hall | DATE/TIME 2-28-08 1350 | RECEIVED BY/STORED IN<br>M Valuta / M Valo | DATE/TIME 2-28-08 1350 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| 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
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-023 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM HALL | COMPANY CONTACT<br>SYDNOR, HA | TELEPHONE NO.<br>373-3967 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE BN<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5960 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.<br>V08-001 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO.<br>DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH<br>117'-119' | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1TNK8 | | S | 2-28-08 | 1145 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK8A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK8B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK8C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| | | | | | | | |
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| | | | | | | | |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>FM HALL | DATE/TIME<br>2-28-08 | RECEIVED BY/STORED IN<br>M Valenta / M. Valen | DATE/TIME<br>2-28-08 | ** Each sample will consist of 3 sample liners.<br>(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99} |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | |

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

| CH2M Hill Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-001-024 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: Fon Hall | COMPANY CONTACT: SYDNOR, HA | TELEPHONE NO.: 373-3967 | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: C5960 | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5944-C5966 | | SAF NO.: V08-001 | AIR QUALITY: -- | |
| ICE CHEST NO. | FIELD LOGBOOK NO.: DTS-SAWS-H97 | ACTUAL SAMPLE DEPTH: 138'-140' | COA | METHOD OF SHIPMENT: GOVERNMENT VEHICLE | |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | |

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSES | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1TNK9 | | S | 3-3-08 | 0900 | 1X250mL P | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK9A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK9B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1TNK9C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| Fon Hall | 11:05 3-3-08 | V. Vavrina / M. Valo | 11:05 3-3-08 |
| | | | |
| | | | |
| | | | |

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 sample liners.
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB} Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

# APPENDIX G

# WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTATION

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ENERGYSOLUTIONS

October 3, 2007 MGG-07-4876

State of Washington
Department of Ecology
Water Resources Program
Well Drilling Unit
Post Office Box 47600
Olympia, Washington 98504-7600

Subject: Notice of Intent to Construct, Decommission, and Install Monitoring Probes in Geotechnical Borings

To Whom It May Concern,

Attached are the Notice of Intent to Construct (S27641) and Decommission (A118505) Geotechnical borings. These Notice of Intent forms have been completed with information pertaining to 22 borings. These borings are located on the Hanford site near the intersection of 7th St. and Buffalo Avenue located in the 200 East Area, Northwest of C Tank Farm.

These borings are designated as C5943 through C5964 supporting the vadose zone characterization scope and will be completed under Notice of Intent Construction Start Card S27641. A majority of these borings will be decommissioned upon acquirement of geophysical and soil characterization data. Selected borings will be used to install Resistivity probes and will be documented on the applicable Well Completion Report.

If you have any questions, please contact me at (509) 375-9587.

Very truly yours,

M. 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-07-4786

ATTACHMENT

Notice of Intent to Construct, Decommission, and Install Monitoring Probes in Geotechnical Borings

Consisting of 3 pages, including cover page

# NOTICE OF INTENT TO CONSTRUCT A

Notification Number S 27641

WASHINGTON STATE DEPARTMENT OF ECOLOGY

*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): CH2 M 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 twenty-two (22)
6. Approx construction start date October 10, 2007

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 outside 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 David E. Skoglie License No. 1580

12. SEND THE ENTIRE FORM. The bottom portion of this notice will be validated in our office and sent back to the name and address contained on the address label. This is the proof of notification. Please fill out the portion below CAREFULLY.

NOTE: Please copy the Notification Number (located in the upper and lower right corner) and keep in a safe place. Please reference this number when communicating with the Department of Ecology.

**This notification number must be provided to your well driller:** S 27641

RETURN NAME AND MAILING ADDRESS

Name David E. Skoglie
Mailing Address 2345 Stevens Dr.
City Richland State Wa Zip 99352

Client Name _____

Agency Validation
Date: _____

ECY 040-55 (Rev. 10/02)

Notification Number
A 118505

# NOTICE OF INTENT TO DECOMMISSION A WELL

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) 373-3967
   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)*

| | | |
|---|---|---|
| ○ Water Well ($50.00) | | Rev. Code: 027-WEL8-02-87-000108 |
| ○ Resource Protection ($20.00 ea) | How many? | Rev. Code: 027-WEL9-02-87-000109 |
| ○ Ground Source Heat pump ($20.00 ea) | How many? | Rev. Code: 027-WL10-02-87-000110 |
| ○ Grounding Well ($20.00 ea) | How many? | Rev. Code: 027-WL10-02-87-000110 |
| ● Geotech Soil Boring (No Fee) | How many? 22 | |
| ○ Soil Sampling (No Fee) | How Many? | |
| ○ 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, 200 East SW Corner outside C Tank Farm
7. Notice of Intent No. of well being decommissioned and Unique Well ID Tag # (if applicable) S27641
8. Tax parcel number N/A 9. Approx. decommissioning start date _____

10. Contractor L & I Registration No. DURATFS990K5
11. Well Drilling Company Name Energy Solutions Phone No. (509) 375-9591
12. Well Driller Name David E. Skoglie License No. 1580

13. SEND THE ENTIRE FORM. The bottom portion of this notice will be validated in our office and sent back to the name and address contained on the address label. This is the proof of notification. Please fill out the portion below CAREFULLY.

*14. NOTE: Please copy the Notification Number (located in the upper and lower right corner) and keep in a safe place. Please reference this number when communicating with the Department of Ecology.*

**Total Enclosed**

_____ **Water Well $50.00**
_____ **Resource Protection Well =$20.00 per Well**

**This notification number must be provided to your well driller:**
A 118505

RETURN NAME AND MAILING ADDRESS

Client Name _____

Name David E. Skoglie
Mailing Address 2345 Stevens Dr.
City Richland State Wa Zip 99352

Agency Validation
Date: _____

ECY 040-24 (Rev. 7/05)

April 12, 2008

State of Washington
Department of Ecology
Nuclear Waste Program
Hanford Project
3100 Port of Benton Blvd
Richland, WA 99352

Dear Department of Ecology,

WATER WELL REPORTS

Attached please find Water Well Report forms addressing completion/decommissioning operations for five (5) geotechnical borings. The Water Well report forms have been completed with information from field operations (reference Notice of Intent Start Card S27641 and Abandonment Start Card A118505). These geotechnical borings are located on the Hanford site, 200 East Area, and adjacent to C Tank Farm.

These geotechnical borings are designated as C5960, C5955, C5953, C5959 and C5963. Soil sampling borings are even numbers. Geophysical logging was conducted in odd numbered borings. Resistivity probes were installed in borings C5959 and C5963.

The fractional section system topographical location for these geotechnical borings is SW ¼ NE ¼, Section 2, Township 12N, Range 26EWM

Should you have any questions, please contact me at (509) 375-9587.

Very truly yours,

M. G. Gardner, Manager
Well Services

Attachments 1

CHG - H.A. Sydnor

FH - G.G. Kelty

Energy Solutions - D.E. Skoglie
K.D. Reynolds
M.G. Gardner
R.Z. Steffler
File/LB

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☒ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5943

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 104 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 104 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 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.** S27641

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 | 0 | 104.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| Borehole was drove vertical. | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| The tubing was back-pulled | 82.0 | 1.0 |
| and boring decommissioned | | |
| with 5.0 sks bentonite | | |
| crumbles. | | |
| A moisture resisitivity probe | | |
| was placed at a depth of 90 | | |
| ft bgs. Sand was placed | 104.0 | 82.0 |
| around the probe | | |
| NOTE 1: This boring is C5943 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 11/05/08 Completed Date 02/25/08

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 02/26/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☒ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5947

☐ 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 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.** S27641

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 | 0 | 202.5 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 202.5 | 156.0 |
| and boring decommissioned | 143.0 | 1.0 |
| with 13.5 sks bentonite | | |
| crumbles. | | |
| | | |
| A moisture resistivity probe | | |
| was placed at a depth of 150 | | |
| ft bgs. Sand was placed | 156.0 | 143.0 |
| around the probe. | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| NOTE 1: This boring is C5947 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 11/01/08 Completed Date 02/25/08

Tax Parcel No. N/A

**WELL CONSTRUCTION CERTIFICATION:** I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No:

Driller's Signature: David L. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 02/26/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5951

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 104 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 104 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 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.

Airlift ____ 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.** S27641

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 | 0 | 104.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 104.0 | 0.0 |
| and boring decommissioned | | |
| with 5.6 sks bentonite | | |
| crumbles. | | |
| NOTE 1: This boring is C5951 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 11/05/08 Completed Date 11/20/07

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 02/26/08

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* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5952

☐ New well ☐ Reconditioned *Method*: ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.2 inches, drilled 44 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 44 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 N/A Date ____

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

Artesian 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.** S27641

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 28 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 | 44.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 44.0 | 0.0 |
| and boring decommissioned | | |
| with 2.75 sks bentonite | | |
| crumbles. | | |
| | | |
| NOTE 1: Samples Obtained. | | |
| 9.5 - 11.5 ft bgs | | |
| 11.5 - 13.5 ft bgs | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| NOTE 2: This boring is C5952 | | |
| located on the Hanford Site. | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 12/11/07 Completed Date 12/13/07

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 02/26/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5952A

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.2 inches, drilled 142 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 142 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 N/A Date ____

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.** S27641

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 | 142.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 142.0 | 0.0 |
| and boring decommissioned | | |
| with 9.0 sks bentonite | | |
| crumbles. | | |
| | | |
| | | |
| NOTE 1: Samples Obtained | | |
| 9.5 - 11.5 ft bgs | | |
| 14 - 16 ft bgs | | |
| 60 -62 ft bgs | | |
| 80 - 82 ft bgs | | |
| 100 - 102 ft bgs | | |
| 118 - 120 ft bgs | | |
| 140 - 142 ft bgs | | |
| | | |
| | | |
| | | |
| NOTE 2: This boring is C5952A | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 12/13/07 Completed Date 01/22/08

Tax Parcel No. N/A

**WELL CONSTRUCTION CERTIFICATION:** I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Driller or trainee License No. 1580

Name (Print Last, First) Skoglie, David

Driller/Engineer/Trainee Signature

IF TRAINEE: Driller's License No.

Driller's Signature David Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 02/28/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5953

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 104 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 104 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 ____

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.

Airlift 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. S27641

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 28 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 | 104.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 104.0 | 0.0 |
| and boring decommissioned | | |
| with 6.0 sks bentonite | | |
| crumbles. | | |
| NOTE 1: This boring is C5953 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 12/04/07 Completed Date 03/12/08

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 David E Skoglie

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No DURATFS980K5 Date 04/12/08

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* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5955

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 104 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 104 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 ____
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ cap, valve, etc.)

N/A

**WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

*Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)*

| Time | Water Level | Time | Water Level | Time | Water Level |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
Airtest gal./min. with stem set at ____ ft. for ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

**CURRENT**

**Notice of Intent No.** S27641
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 28

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 | 104.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 104.0 | 0.0 |
| and boring decommissioned | | |
| with 6.1 sks bentonite | | |
| crumbles. | | |
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| NOTE 1: This boring is C5955 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 11/19/07 Completed Date 03/10/08

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 David L Skoglie
IF TRAINEE: Driller's License No:
Driller's Signature:

Drilling Company Energy Solutions
Address 2345 Stevens Dr.
City, State, Zip Richland, Washington, 99352
Contractor's Registration No. DURATFS990K5 Date 04/12/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☒ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5957

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 144 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 144 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 N/A Date ____

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.

Airlift 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. S27641

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 | 144.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 136.0 | 1.0 |
| and boring decommissioned | | |
| with 8.5 sks bentonite | | |
| crumbles. | | |
| | | |
| A moisture resistivity probe | | |
| was placed at a depth of 143 | | |
| ft bgs. Sand was placed | 144.0 | 136.0 |
| around the probe. | | |
| | | |
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| | | |
| NOTE 1: This boring is C5957 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 11/27/08 Completed Date 02/25/08

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 T. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland . Washington. 99352

Contractor's Registration No. DURATFS990K5 Date 02/26/08

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* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5958

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.2 inches, drilled 136 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 136 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 ____

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.

Airlift gal./min. with seats 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.** S27641

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 | 0 | 136.5 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 136.5 | 0.0 |
| and boring decommissioned | | |
| with 8.4 sks bentonite | | |
| crumbles. | | |
| | | |
| | | |
| NOTE 1: Samples Obtained | | |
| 10.5 - 12.5 ft bgs | | |
| 54 - 56 ft bgs | | |
| 79 -81 ft bgs | | |
| 100 - 102 ft bgs | | |
| 114 - 116 ft bgs | | |
| 116 - 118 ft bgs | | |
| 134.5 - 136.5 ft bgs | | |
| | | |
| | | |
| | | |
| NOTE 2: This boring is C5958 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 01/07/08 Completed Date 02/04/08

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 T. Skoglie

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 02/26/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5959

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 104 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 104 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. 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.** S27841

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 28 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 | 104.0 |
| Borehole was drove vertical. | | |
| Geophysical logging (Gamma and Moisture) were conducted | | |
| The tubing was back-pulled and boring decommissioned with 6.0 sks bentonite crumbles. | 90.0 | 0.0 |
| A moisture resisitivity probe was placed at a depth of 95 ft bgs. Sand was placed around the probe. | 104.0 | 90.0 |
| Surface protection was placed on 03/19/08. | | |
| NOTE 1: This boring is C5959 located on the Hanford Site, UPR-86 (adjacent to C Tank Farm). | | |

Start Date 11/20/07 Completed Date 03/19/08

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 David L. Skoglie

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 04/12/08

BCY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5960

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.2 inches, drilled 136 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 136 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 ____

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

N/A

**WELL TESTS:** Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

*Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)*

| Time | Water Level | Time | Water Level | Time | Water Level |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

**CURRENT**

**Notice of Intent No.** S27641

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 | 0 | 140.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 140.0 | 0.0 |
| and boring decommissioned | | |
| with 7.0 sks bentonite | | |
| crumbles. | | |
| | | |
| | | |
| NOTE !: Samples Obtained | | |
| 18 - 20 ft bgs | | |
| 41.5 - 43.5 ft bgs | | |
| 59 -61 ft bgs | | |
| 83 - 85 ft bgs | | |
| 98 - 100 ft bgs | | |
| 115 - 117 ft bgs | | |
| 117 - 119 ft bgs | | |
| 138 - 140 ft bgs | | |
| | | |
| | | |
| NOTE 2: This boring is C5960 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 02/04/08 Completed Date 03/17/08

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 David Skoglie

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATES990K5 Date 04/12/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5961

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 104 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 104 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 ____

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

N/A

**WELL TESTS:** Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

*Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)*

| Time | Water Level | Time | Water Level | Time | Water Level |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Artesian 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.** S27641

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 | 104.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 104.0 | 0.0 |
| and boring decommissioned | | |
| with 6.25 sks bentonite | | |
| crumbles. | | |
| NOTE 1: This boring is C5961 | | |
| located on the Hanford Site, | | |
| UPR-86 (adjacent to C Tank | | |
| Farm). | | |

Start Date 11/07/06 Completed Date 11/26/07

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 02/26/08

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

# WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

**Construction/Decommission** *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

*Notice of Intent Number* A118505

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C5963

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 104 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 104 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 ____

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. S27641

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 28

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 | 104.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 89.0 | 0.0 |
| and boring decommissioned | | |
| with 6.0 sks bentonite | | |
| crumbles. | | |
| | | |
| A moisture resistivity probe | 104.0 | 89.0 |
| was placed at a depth of 95 | | |
| ft bgs. Sand was placed | | |
| around the probe. | | |
| | | |
| Surface Protection was placed | | |
| on 03/19/08. | | |
| | | |
| | | |
| | | |
| | | |
| NOTE 1: This boring is C5963 | | |
| located on the Hanford Site, | | |
| UPR-66 (adjacent to C Tank | | |
| Farm). | | |

Start Date 11/06/07 Completed Date 03/19/08

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 David E. Skoglie

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Energy Solutions

Address 2345 Stevens Dr.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990K5 Date 04/12/08

ECY 050-1-20 (Rev 3/05)

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# APPENDIX H

# SAFETY DOCUMENTS

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## H1.0 ACTIVITY HAZARD ANALYSIS

| ENERGYSOLUTIONS | **ACTIVITY HAZARD ANALYSIS**<br>UPR-200-E-86 CHARACTERIZATION<br>HYDRAULIC HAMMER UNIT OPERATIONS | AHA-07-007- REV. 0<br>CH2M HILL |
|---|---|---|

| | | | | |
|---|---|---|---|---|
| Prepared by: | Robert Zane | Signature: | Date: | |
| Supervisor: | Dave Skoglie | Signature: | Date: | |
| Reviewed by: | Kent Reynolds | Signature: | Date: | |
| Reviewed by: | Mike Powers | Signature: | Date: | |

**EVERY WORKER MUST UNDERSTAND THE HAZARDS ASSOCIATED WITH THIS ACTIVITY AND THE CORRECTIVE MEASURES TO BE TAKEN. IF YOU DO NOT UNDERSTAND ANY PORTION OF THIS AHA OR HAVE ENCOUNTERED CONDITIONS THAT HAVE NOT BEEN ADDRESSED ADEQUATELY, STOP AND DO NOT PROCEED UNTIL YOU HAVE CONTACTED YOUR SUPERVISOR.**

**Scope/Description:** The Hydraulic Hammer Unit (HHU) is a tractor with a boom mounted hydraulic impact/rotation hammer that will be used to push pipe into the ground for soil sample collection, geophysical logging, and resistivity probe placement at desired depths. The hydraulic drive head uses a chain and hydraulic ram for the hammer to impact drive/rotate pipe into the subsurface. The hydraulic ram operates inside of a steel mast, which lifts and lowers the hammer unit. Hydraulic jaws and pipe wrenches will be used to assemble the pipe.

**Specific Work Location(s):** Hanford, 200 East Area, outside of the Southwest corner of C-Farm.

**Minimum PPE Requirements:** Safety glasses with side-shields and protective footwear shall be worn in all work areas or as indicated in the body of this AHA.

**Activity Tasks:**

1. Push casing to desired depth or refusal.
2. Perform geological logging to for subsurface characterization and to determine sample collection points.
3. Collect samples from desired depths.
4. Place resistivity probes in the boreholes at the investigative sites, if requested.
5. Decommission the boreholes and provide secure surface seal.

| Topic | Yes | No | Topic | Yes | No |
|---|---|---|---|---|---|
| Radiation Work Area | X | | Respiratory Hazards | X | |
| Hazardous Waste Operations | X | | Noise Exposure | X | |
| Confined Space | | X | Temperature Extremes | X | |
| Hot Work | X | | Hoisting & Rigging | X | |
| Roof Work | | X | Repetitive Motion | X | |
| Fall Hazard (≥ 6 ft) | | X | Awkward Positions | X | |
| Excavation/Trenching | X | | Same Position(s) | X | |
| Ladders and/or Scaffolding | X | | Biological/Vermin | X | |
| Aerial Lifts | | X | Insects/Varmints | X | |
| Heavy Equipment | X | | Signs and Barricades | X | |
| Lock and Tag | X | | Utility Survey required | X | |
| Site/Vehicle Traffic | X | | Explosive Operations | | X |
| Electrical Hazards | X | | Asbestos Work | | X |
| Lead Work | | X | Other Chemical Hazards | X | |
| Hazardous Materials/MSDS | X | | | | |

**SPECIFIC HAZARD AND SAFE WORK REQUIRMENTS**

Known and/or potential hazards, including any marked "yes" above, are further evaluated, and specific measures are identified on subsequent pages. This discussion must include identification of the work activity, the specific hazards present, and the safe work requirements/controls (including a hazards assessment/modification for PPE) to be used to alleviate/control the hazard(s).

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| General – Site and vehicle inspection, and remote locations. | Fall hazards – slip/trip/fall<br>Overhead obstructions | Walking and working surfaces:<br>• Be aware of cobbles and irregular walking surfaces when traversing the site.<br>• Keep work areas picked up of tools and equipment.<br>• Clean up spills or mark the area with safety barricades until the spill can be cleaned up.<br>Falling objects:<br>• Secure unstable items in the work area.<br>• Wear hard hat, safety glasses, and safety-toed footwear in work zones.<br>Ladders:<br>• Use ANSI approved ladders rated for heavy-duty or extra-heavy-duty use (Type I or Type IA).<br>• Inspect ladder prior for defects prior to use.<br>• Verify that periodic inspection was performed within last 12 months. |
| | Chemicals- Equipment lubricants<br>Hydraulic oil<br>Pipe lube | • MSDS are located in the Energy*Solutions* field office.<br>• Personnel shall review the MSDS prior to working with any chemicals.<br>• Personnel shall follow controls specified in MSDS or contact site safety representative for additional guidance. |
| | Vehicle/equipment inspection<br>Maintenance<br>Pinch points<br>Falling | Motorized Equipment:<br>• Motorized equipment shall be maintained as required by the manufacturer.<br>• Motorized equipment shall be inspected daily and documented on appropriate forms.<br>• Motorized equipment needing repair shall be removed from service, unless the supervisor determines it is safe to operate.<br>• If it is unsafe to operate it shall be tagged out of service.<br>• If motorized equipment is noticed to be deficient during operation, the supervisor shall be notified immediately.<br>• Personnel shall use three points of contact when ascending/descending equipment.<br>Forklifts/Rigging:<br>• Forklifts shall be inspected prior to use each shift and the results documented on appropriate form.<br>• Forklifts and "Below the Hook Lifting Devices" used onsite shall meet the requirements of DOE-RL-92-36 "Hoisting and Rigging Manual" (HRSM).<br>Pinch Points:<br>• Wear leather or equivalent work gloves when handling equipment.<br>• Be aware of where you place your hands and feet.<br>• Ensure that equipment with rotating type pinch points are guarded while in operation and prior to conducting maintenance ensure that it is secured, |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | locked and tagged out.<br>Spill Containment and Control:<br>• Plastic sheeting and felt shall be placed beneath the equipment that has the potential for leakage of vehicle fluids.<br>• 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.<br>• Spills shall be reported to the customer and management immediately. |
| | Remote Work Area | Remote Work Area:<br>• Know the location of your work site and be able to describe its location to emergency responders.<br>• If emergency responders are summoned, send someone to the entry intersections of the site access road and main roadway to direct responders to the site.<br>• A cell phone must be onsite for contacting emergency responders.<br>Bloodborne Pathogens:<br>• Employees who could reasonably anticipate coming in contact with blood or other potentially infectious materials shall meet training and medical requirements of TFC-ESHQ-S-STD-24, REV A-4 (Bloodborne Pathogen Exposure Control Standard).<br>First Aid:<br>• Maintain a fully stocked first aid kit in accordance with TFC-ESHQ-S-STD-04, REV A-6.<br>• At least one individual on site shall have First Aid/CPR training. |
| | Emergencies | Fire:<br>• Employees should attempt to extinguish incipient stage fires only if they have been trained in the use of fire extinguishers.<br>• Call HFD at **373-3800**.<br>• Maintain at least two (2) ABC 20 pound fire extinguishers on site and place within work location for easy access.<br>• Evacuate upwind to a safe distance and account for all site personnel and visitors.<br>• The *Hanford Fire Dept. must be notified of all fires even if they have been extinguished.*<br>Injuries:<br>• For minor injuries, transport injured person to the 200 West Medical Aid Station, 2710-WA Bldg or an in town medical facility.<br>• For serious or life threatening injuries, call **373-3800** and administer first aid as indicated by the nature of the injury until emergency medical |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | services arrive.<br>• All injuries are to be immediately reported to the field supervisor and site safety representative.<br>Emergency Evacuation:<br>• All personnel shall respond to Emergency Area alarms by safely securing operations, exiting work area, and taking appropriate emergency response actions, per HGET 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<br>• The control zone shall be roped and posted "Authorized Personnel Only".<br>• Set-up reflective barricades where vehicle paths enter the control zone.<br>Training Requirements:<br>• 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.<br>• Any revision of this safety plan requires re-reading and re-acknowledgement of the plan by all personnel. |
| | Working during hours of darkness | 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 | Cold Stress:<br>• Watch for symptoms such as reduced mental alertness, pain in extremities, and severe shivering.<br>• Provide fluids to maintain hydration.<br>• Use portable heaters as needed in the work area.<br>• Wear winter gear.<br>• Allow employees to take warming breaks as needed. |
| | Adverse Weather Conditions | • Contact the weather station at 373-2716 for information about adverse weather conditions.<br>• Upon receiving the lightning warning within 30 miles notice or observation of lightning in the area stop all work with elevated booms. |
| | Sanitation at work location | • Apprise work crew of the nearest toilet facility.<br>• Provide wash water and wash hands prior to consuming food or beverages. |
| | Biological Hazards – Spiders, Snakes | • Watch for spiders when reaching into enclosed spaces. Many sites are located in rattlesnake habitat areas.<br>• Be careful when handling equipment that has rested on the ground.<br>• 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 |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | site. If needed, call the Pest Control (376-2517 or 376-5122) to have the snake removed. |
| | Excavation – Underground utilities | • Excavation permits shall be obtained prior to conducting push activities. U-Dig shall be notified 48 hours prior to excavation to allow time for response by utility companies. |
| | Electrical shock – elevated and boom operated equipment working near overhead power lines | • Before raising mast of the vehicle (such as forklift or tractor), be sure there are no overhead power lines nearby.<br>• Vehicle boom/mast must be a minimum of 10 ft. away from power lines.<br>• 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.<br>• Avoid moving equipment underneath overhead electric lines or near power poles |
| Moving the tractor and equipment to the designated probe placement location. | Bumping/crushing objects, equipment, people | • Employees shall perform 360 degree walk-around to ensure that no obstacles are in the path of the vehicle.<br>• Use a spotter when moving equipment in confined areas or near objects that are not readily visible.<br>• Only qualified operators will operate equipment (tractor, forklifts, etc.).<br>• Be aware of moving equipment and always make contact with operator before approaching operating equipment.<br>• Forklift operators shall ensure that the load is stable and does not exceed the rated capacity.<br>• Sound horn whenever blind spots exist.<br>• Be familiar with the locations of overhead hazards.<br>• Wear hard hats and protective toed shoes when working around forklift, tractor, or heavy objects that could fall. |
| | Equipment Noise | • Personnel shall wear hearing protection when driving the tractor. |
| | Falling off tractor | • Employees shall use a three point contact when ascending/descending the tractor or forklift |
| | Pinch Points | • Wear leather or equivalent work gloves when handling equipment.<br>• Be aware of where you place your hands and feet.<br>• Ensure that equipment with rotating type pinch points are guarded while in operation and prior to conducting maintenance ensure that it is secured, locked and tagged out. |
| Setting the outriggers and drive unit on the designated probe placement point. | Pinching and crushing<br>Stable surface – tipping of unit | • When setting the outriggers up the operator shall ensure that employees are staged away from the tractor.<br>• Cribbing shall be used whenever there is a |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | 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). |
| | Bumping/crushing objects, equipment, people | • The operator of the tractor shall ensure that no objects, equipment, or employees are in boom radius prior to operation.<br>• All personnel are responsible for staying out of the path of the boom while it is in operation.<br>• Do not traverse under a suspended load.<br>• Wear hard hat within 15 ft of the HHU when it is in operation. |
| Driving Casing | Struck by/Pinch points | • Only a trained and qualified operator shall operate the drive unit.<br>• Personnel working in close proximity to the hydraulic hammer unit shall be briefed on the pinch points and other associated hazards.<br>• Stay clear of the drive unit when in operation.<br>• Personnel shall make contact with the driller before approaching the drive unit. |
| | Soil contaminates | Exposure to chemicals in fluid form is unlikely based on selected probe locations and local hydrogeologic information. However, if during push rod retrieval any evidence of free liquids is observed, a "Work pause" will be placed in effect.<br>• Workers that could be exposed to fluids shall utilize of pair of Silver Shield gloves under their outer canvas or leather gloves and don a splash protective outer layer over their clothing, if deemed necessary by Energy*Solutions* Site Safety and RCT.<br>• In the event that a chemical or radiological contaminate is released from the borehole, the employees shall secure the area if possible, exit the area and meet in the designated staging area. Personnel shall comply with the client's emergency procedures.<br>• Potentially contaminated employees shall be segregated from the others until the RCT can determine if they are contaminated.<br>• Contact Energy*Solutions* management as soon as possible.<br>• Supervisor shall ensure that the appropriate reports are completed as required by procedures. |
| | Hydraulic Jacks and Pipe Wrenches | Cut/Abrasions:<br>• Employees shall wear leather gloves or equivalent whenever there is a potential for cuts and abrasions to the hands.<br>Awkward posture/same position:<br>• Take breaks as needed to avoid muscle strain/fatigue.<br>• Avoid prolonged still positions.<br>• When pulling/pushing, keep the back as straight |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | as possible.<br>• Use a steady pull/push during removal/installing pipe.<br>• Only approved equipment may be utilized to make up and break out push tubing. Use of a "cheater" bar is not allowed |
| | Equipment Noise | • When using the HHR to hammer piping into the ground, personnel working within 10 ft. of the drill head must wear both foam ear plugs and earmuffs. Personnel working greater than 10 feet but within 50 ft. from drill head shall wear hearing protection with a minimum NRR of 32.<br>• When operating the HHR to pull pipe or other functions that do not involve hammering piping, personnel shall wear hearing protection with a minimum NRR of 22. |
| Decommissioning of the borehole | Bentonite Dust | • Wash hands and face prior to eating, drinking smoking, applying cosmetics, or using the restroom.<br>• 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.<br>• 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.).<br>• Promptly wash skin that comes in contact with cement powder or wet cement. |

**Monitoring Requirements:**

**Radiological monitoring will be conducted and controlled by CH2M HILL personnel; results will be available from the assigned Radiological Control Technician.**

**Chemical monitoring will be conducted and controlled by the CHG personnel; results will be available from the assigned Industrial Hygienist.**

# 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 Leaders | | |
| Dave Skoglie | 375-9591 | 308-0136 |
| Mike Walkup | 375-9563 | 308-3963 |
| Safety Representative / Rob Zane | 375-9585 | 308-6404 |
| Manger / Kent Reynolds | 375-9598 | 308-3000 |

# TANK FARMS CONTACTS

| Name | Phone Number |
|---|---|
| | |
| | |
| | |

***ENERGYSOLUTIONS* ACTIVITY HAZARD ANALYSIS ACKNOWLEDGEMENT**
**AHA-07-007-Rev. 0 CH2M HILL**
**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 |
|---|---|---|---|
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## H2.0 SAFETY INSPECTIONS

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 10/30/07<br>Time: 1300<br>Location: U-Farm | Inspectors: Rob Zane |
| Activity: Performing Maintenance on HHU | Report #: CHG-RWZ-07-019 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 11/09/07<br>Time: 0900<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-020 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Coffee cup was found inside of the work area and when questioned some of the crew members thought that it was okay to have drink beverages in the work area because it was not a radiologicaly controlled area. Had a discussion with the whole crew, informing them that consumption of food, beverages, etc. inside of the work area would not be allowed even when it is not radiologicaly controlled.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 11/27/07<br>Time: 1330<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-022 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

The extension cords, supplying power to air monitors and logging equipment, are run across the ground (not inside of a protective cover) in front of the gate used for bring vehicles/equipment into the work area. Talked to the site supervisor about them and was informed that they were being rolled up when vehicles/equipment were brought into the work area as a temporary fix until approved covers were acquired.

The acquisition of the protective covers should be expedited to avoid the predictable error of personnel forgetting to roll up the cords.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 12/7/07<br>Time: 1200<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-023 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

There was an unlabeled secondary container of sand at the jobsite. Material was transferred out of the secondary container during inspection and crew was briefed on labeling requirements during weekly safety meeting on 12/11/07.

Employee was in the work zone wearing non-safety glasses. Employee switched to safety glasses after being notified.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 12/13/07<br>Time: 1330<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-024 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

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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.**

Job site looked good.

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 12/21/07<br>Time: 1100<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-025 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Performed inspection with focus on looking for items that could be affected by weather during the Christmas break. When I arrived at the jobsite personnel were already securing items that could be moved by wind and putting other supplies away in the storage trailer. Good job!

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 01/03/08<br>Time: 1400<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-001 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Vehicle barricade near Southwest entrance had blown down. Fixed during inspection.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 01/16/08<br>Time: 1100<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-002 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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. One of the four extension cords, run across the equipment/vehicle entrance was left on the ground and driven across by a maintenance vehicle. This cord was missed because of the snow covering it. *The cord was inspected for damage during the performance of this surveillance and none was detected. To prevent reoccurrence, cord protectors were acquired and placed across the entrance.*
2. Extension cords were "daisy-chained". *Corrected during inspection.*
3. Ice patches were creating slip hazards throughout the work and support areas. *Ice melt was spread around to create safe walk paths.*

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 01/23/08<br>Time: 0900<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-003 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

The jobsite looked good. I also observed the following good work practices.

- Personnel were wearing seat belts while operating the backhoe, including moves of a few feet.
- Personnel readjusted the plastic to remove slip hazards before starting work.
- Personnel asked for help to move heavy objects.
- All personnel were wearing required PPE.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 02/21/08<br>Time: 1345<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Job Site Clean-up | Report #: CHG-RWZ-08-006 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | | | X |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

One of the fire extinguisher tags was missing. Probably from recent winds. Employees will replace on Monday.

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 02/29/08<br>Time: 1000<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-007 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Tumble weeds have accumulated along the fence on the east side of the work area. CH2 NCO called to schedule removal during the inspection. *The tumbleweeds were removed on 03/03/08.*

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 03/04/08<br>Time: 1430<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-008 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.** | | | |

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 03/20/08<br>Time: 1300<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Clean-up and Maintenance | Report #: CHG-RWZ-08-010 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

In general the site was much improved. Housekeeping looked great and chemicals were controlled per the hazcom procedure. I did notice a couple of PPE use issues that will need to be watched.

1. An employee was working while wearing reading glasses instead of the required safety glasses. When this was pointed out the employee quickly changed to the appropriate pair.
2. When the tractor was started to reposition the mast, personnel did not don hard hats until partway through the evolution.

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 03/25/08<br>Time: 1330<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Clean-up and Maintenance | Report #: CHG-RWZ-08-011 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | | | X |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.** | | | |

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 04/03/08<br>Time: 0900<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: NA | Report #: CHG-RWZ-08-012 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Personnel were not working at the job location during inspection.

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 04/11/08<br>Time: 1030<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Installing Hoist Mounting Bracket | Report #: CHG-RWZ-08-013 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Approved containers are properly stored. | X | | |
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | X | | |
| 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.** | | | |

## H3.0 SAFETY AUDIT AND SURVEILLANCE

| Number | Description | Reference |
|---|---|---|
| | | |
| 1 | Weekly Health and Safety Inspections | Contract |
| 1a | Are they performed and documented in accordance with the requirements? | |
| | | |
| 2 | Weekly Safety Meetings | Contract |
| 2a | Are they performed and documented in accordance with the requirements? | |
| 2b | Do they relate to current "Hanford Site Issues" or to the work being performed. | |
| | | |
| 3 | Hazard Communication | TFC-ESHQ-S_IH-C-02, REV A-9 |
| 3a | Containers Labeled in accordance with procedure | |
| 3b | MSDSs available for all chemicals at the jobsite | |
| 3c | Right to Know Station set up per procedure | |
| 3d | Employees have received information/training on chemicals that they work with | |
| | | |
| 4 | Electrical Safety | TFC-ESHQ-S-STD-03, REV B-8<br>TFC-ESHQ-S_SAF-C-09, REV B<br>RPP Lessons Learned No. 07-014 (Extension Cord Safety) |
| 4a | Personnel have received appropriate level of training | |
| 4b | Extension cords are used properly | |
| 4c | Portable power tools are maintained | |
| 4d | GFCI protection is provided as required | |
| 4e | Only approved electrical equipment is used | |
| 4f | Electrical distribution system meets requirements | |

RPP Lessons Learned

CH2MHILL
Hanford Group, Inc.

Just In Time

No. 07-014

## Extension Cord Safety

**Event:** On March 27, 2007, a subcontractor safety representative at the Waste Treatment Plant cut the female end of an energized 110-volt electrical cord with a box cutter, which resulted in sparks issuing from the cord and tripping of a GFCI and the breaker on a portable electrical supply unit.

**Important Points:**

- The safety representative had noticed green electrical tape wrapped around the cord in several locations covering a significant cut on the cord. The safety representative then visually traced the wire and assumed the cord was unplugged.
- According to NIOSH, 54% of the worker electrocutions between 1982 and 1994 by contact with AC voltages less than 600V involved household current of 120 to 240 volts[1]. Some examples:
  - Fast food restaurant employee electrocuted while plugging a portable electric toaster into 110V/20 amp receptacle.
  - Electrician's helper electrocuted while wiring a fluorescent light fixture in a suspended ceiling.
  - Laborer electrocuted when he contacted 115 volts while adjusting the limit switches on an overhead door opener.

**Contributors:**

- The extension cord was not traced hand-over-hand to the male end to ensure that it was unplugged.

**Other Important Considerations – Prevent Events**

| Extension Cord DO's and DON'Ts | |
|---|---|
| **DO** | **DON'T** |
| • Unplug extension cords when not in use.<br>• Inspect extension cords for damage before use.<br>• Check the wattage rating on the appliance or tool that the extension cord will be used with; do not use an extension cord that has a lower rating.<br>• Make sure all equipment and extension cords bear the mark of an independent testing laboratory such as UL (Underwriter's Laboratories).<br>• Keep extension cords away from water.<br>• Use GFCI protection.<br>• Pull on the plug, not the cord when removing an extension cord from the outlet.<br>• Store extension cords indoors.<br>• Keep slack in flexible extension cords to prevent tension on electrical terminals.<br>• Put safety covers on the unused receptacle outlets on extension cords. | • Don't use an extension cord marked for indoor use outdoors.<br>• Don't plug one extension cord into another.<br>• Don't overload cords.<br>• Don't run extension cords through doorways, holes in ceilings, walls, or floors.<br>• Don't move, bend, or modify any of the metal parts of the extension cord plug.<br>• Don't force a plug into an outlet.<br>• Don't overheat an extension cord.<br>• Don't cover an extension cord with anything.<br>• Don't drive over an extension cord.<br>• Don't drag an extension cord.<br>• Don't attach extension cords to the wall with nails or staples.<br>• Don't run extension cords under rugs or carpets or in high traffic areas. |

[1] U.S. Department of Health and Human Services publication, "Worker Deaths by Electrocution, A Summary of NIOSH Surveillance and Investigative Findings", May 1998

Ownership matrix

## TABLE OF CONTENTS


1.0 PURPOSE AND SCOPE ..... 2
2.0 IMPLEMENTATION ..... 2
3.0 RESPONSIBILITIES ..... 2
3.1 Line Management ..... 2
3.2 Industrial Hygiene ..... 2
3.3 Training Manager ..... 2
4.0 PROCEDURE ..... 3
4.1 Purchasing Potentially Hazardous Materials ..... 3
4.2 Receiving Hazardous Materials ..... 4
4.3 Establishing and Maintaining "Right to Know" Stations ..... 5
4.4 Maintaining Original Material Container Label Information ..... 6
4.5 Transferring Hazardous Material to a Secondary Container ..... 7
5.0 DEFINITIONS ..... 8
6.0 RECORDS ..... 8
7.0 SOURCES ..... 8
7.1 Requirements ..... 8
7.2 References ..... 8


## TABLE OF FIGURES


Figure 1. Purchasing of Potentially Hazardous Material Flowchart ..... 10
Figure 2. Receiving Hazardous Material Flowchart ..... 10
Figure 3. Establishing and Maintaining "Right-to-Know" Stations Flowchart ..... 11
Figure 4. Maintaining Original Material Container Label Flowchart ..... 11


## TABLE OF ATTACHMENTS


ATTACHMENT A - TECHNICAL CRITERIA FOR HAZARD COMMUNICATION ..... 12
ATTACHMENT B – TFC HAZARD COMMUNICATION – IMPLEMENTATION SUMMARY ..... 15
ATTACHMENT C - LOCATION OF TFC WORKER RIGHT-TO-KNOW STATIONS AND CHEMICAL STORAGE AREAS ..... 16
ATTACHMENT D – HANFORD HAZARD LABEL ..... 17

## 1.0 PURPOSE AND SCOPE
(7.1.1, 7.1.2, 7.1.4, 7.1.5)

This procedure describes the processes that are used to communicate hazardous material information to all personnel who work with hazardous materials during any activity in the tank farms. The procedure meets all of the requirements and criteria of the Occupational Safety and Health Administration's (OSHA) 29 CFR 1910.1200, "Hazard Communication."

This procedure applies to all Tank Farm Contractor (TFC) personnel and subcontractors, except for personnel who work in laboratories that have a written safety program that complies with 29 CFR 1910.1450, "Laboratory Safety."

## 2.0 IMPLEMENTATION

This procedure is effective on the date shown in the header.

## 3.0 RESPONSIBILITIES
(7.1.5)

### 3.1 Line Management

- Promotes the selection and use of chemicals that minimize hazards (especially where non-toxic, non-hazardous materials are available).
- Ensures that material safety data sheets (MSDSs) are readily accessible to employees in their work area(s) during each shift.
- Ensures that employees receive information and training on hazardous chemicals in their work areas at the time of their initial assignment.

### 3.2 Industrial Hygiene

- Assists employees in obtaining MSDSs.
- Answers questions regarding chemical constituents and substitutions.

NOTE: Industrial hygiene subject matter expert (SME) serves as the interpretative authority for this procedure.

### 3.3 Training Manager
(7.1.3)

- Ensures employees are provided training to comply with OSHA Hazard Communication training requirements. Depending on employee job duties, this training may include: Hanford General Employee Training, HGET (000001 or 000005), Tank Farm Orientation (350710), Facility Emergency/Hazard Identification Checklist, FEHIC (03E060), 24-Hour TSD Hazardous Waste (031110) or 40 Hour Haz Waste Worker (031220).

## 4.0 PROCEDURE
(7.1.1, 7.1.2, 7.1.4, 7.1.5)

This procedure does not apply to the following general categories of materials: (For additional clarification, consult the industrial hygiene subject matter expert.)

- Hazardous wastes/substances regulated by the Environmental Protection Agency under the Resource Conservation and Recovery Act and the Comprehensive Environmental Response Compensation and Liability Act, which includes the chemical and radiological wastes in tank farms
- Personal use items, such as foods/beverages, consumer products, cosmetics, drugs, and first aid supplies
- Manufactured articles that will not release a hazardous chemical under normal or anticipated conditions of use
- Tobacco or tobacco products
- Wood or wood products, except wood dust
- Ionizing and non-ionizing radiation hazards
- Biological hazards.
- Potable and non-potable water supplies. (Water sold by a chemical manufacturer/ distributor for specific analytical purposes is covered by the procedures. Consult industrial hygiene subject matter expert if further clarification is required.)

### 4.1 Purchasing Potentially Hazardous Materials

See Figure 1 for procedure flowchart.

| | |
|---|---|
| Material Coordinators | 1. Obtain approval from Industrial Hygiene in accordance with TFC-BSM-CP_CPR-C-01 and TFC-BSM-CP_CPR-C-06 for the purchase of a potentially hazardous material. |
| | 2. If an approved MSDS is not on file with the Fluor Hanford (FH) MSDS administrator, obtain the MSDS and submit to the FH MSDS administrator. |
| Industrial Hygiene | 3. Use Attachment A to perform hazard assessment. |
| | 4. If the hazard assessment indicates the material should not be used, inform the requestor (through the material coordinator) that the purchase request has been rejected. |

5. If the hazard assessment indicates the material being purchased contains a carcinogen, complete the following substeps.

   a. Inform the requestor that the purchase of a carcinogenic material must be in accordance with TFC-ESHQ-IH-STD-11.

Requestor

   b. Purchase the material in accordance with TFC-ESHQ-IH-STD-11.

Industrial Hygiene

6. Communicate any new information identified in the hazard assessment, including any materials that may be exempt from this procedure.

   NOTE: Communication may be by e-mail, memo, or inclusion in a Worksite Hazard Analysis.

## 4.2 Receiving Hazardous Materials

See Figure 2 for procedure flowchart.

Material Coordinators

1. Receive material shipment.
2. Verify shipment is a material ordered per Section 4.1.
3. Ensure material is moved to prearranged storage location.
4. Turn material over to requesting organization.

Line Manager or Delegate

5. If the material has been previously approved (i.e., MSDS already on file with organization and FH Administrator) go to Section 4.2, step 8.
6. If the MSDS included with the shipment is an updated edition of the MSDS that is not on file with the FH MSDS administrator, complete the following substeps.

   a. Send a copy of the updated MSDS to FH MSDS administrator for inclusion in the MSDS database.

   b. Place a copy of the updated MSDS in the facility Right-to-Know Station (see Section 4.3) as soon as it is entered into the FH MSDS database.

7. If the material is suspected of not being approved, or there is no MSDS available for the material, complete the following substeps.

   a. Stage the material with a label that states "No MSDS, do not use."

b. Contact material coordinator and Industrial Hygiene to clarify status of material.

8. Review the original manufacturer/importer/distributor label for the following required information:

   - The identity of the hazardous material (i.e., product name)
   - Associated health and safety hazards.

9. If an original container label is illegible or does not contain the required information, complete Section 4.4, step 2, as appropriate.

10. Place material into service.

### 4.3 Establishing and Maintaining "Right to Know" Stations

See Figure 3 for procedure flowchart

Line Manager/Delegate

1. Develop (if not already in existence) a list of all of the hazardous materials known to be present in the work area/facility. Include the following information:

   - Identification of material as referenced on the MSDS
   - Manufacturer of the material
   - Current Hanford MSDS number
   - Material storage (facility) location

   NOTE: The Safety and Health Programs Industrial Hygienist can provide assistance in the development of the list.

2. Update the list within 30 days of receipt of a new hazardous material.

3. Obtain the most recent MSDS for all of the materials on the list (see Section 4.2, step 6). MSDSs may be obtained directly from the Hanford MSDS database, which is accessible from the RMIS database.

   NOTE: If access to the RMIS database is not available, MSDSs may be requested from the following sources:

   - Industrial hygienist
   - 
   - E-mail at *msds requests.

4. Complete the TFC Hazard Communication - Implementation

Summary form shown in Attachment B.

5. Establish a Right-to-Know Station (if not already in existence) to provide employees with the following required information about materials used in the work place. Locations of Right-to-Know Stations and chemical storage areas are shown in Attachment C.

   - TFC Hazard Communication – Implementation Summary form
   - A list of hazardous materials for the area/facility
   - A copy of this procedure
   - MSDSs for the materials listed.

     NOTE: MSDSs may be available in notebooks, through computer access (with printer capability), or through a designated responsible person.

6. Perform an audit at least once per year of the Right-to-Know Station to ensure that it contains the required information.

7. If an audit was performed, complete a new TFC Hazard Communication - Implementation Summary form shown in Attachment B and post the form at the Right-to-Know Station.

8. If there is a change in line management, complete a new TFC Hazard Communication - Implementation Summary form shown in Attachment B and post the form at the Right-to-Know Station.

### 4.4 Maintaining Original Material Container Label Information

See Figure 4 for procedure flowchart.

Line Manager

1. Perform periodic review of hazardous material container labels used or stored in the facility/project. Review labels for legibility and content.

Employees

2. Before commencing work with a hazardous material, ensure the container has the required label information by completing the following substeps.

   a. Review the label for legibility and content of the following required information:

      - Name and address of the manufacturer, importer or other responsible party
      - Identity of the material (i.e., product name)

- Associated health and safety hazards, including target organs

- And any other information required by applicable OSHA substance specific standards.

b. If an original container label is illegible or does not list the required information, re-label the container with a completed Hanford Hazard Label in accordance with Attachment D. Actual labels may be obtained from the TFC Sign Shop in 11" x 14", 5" x 7", 2.75" x 3.75" and 1" x 1.5" sizes.

NOTE: The label described in Attachment D is a new label that is superseding the old hazardous materials label. The old label will be acceptable until June 30, 2003, providing that it is already attached to a container and that it contains all of the information required in this procedure.

c. If not enough information is available to fully complete the Hanford Hazard Label, complete the following substeps.

1) Ensure the container is taken out of service.

2) Take one of the following actions, as appropriate.

- Return the material to the vendor.

- Have the contents analyzed to ascertain the missing information.

- Handle the material as unknown waste.

NOTE: All Hanford workers that have access to HLAN may access RIM Information Locator System (RILS). This site provides real time access to MSDS and hazard information required for Hanford hazard levels. To access this information go to the front page of the Hanford Intranet and at the end of the address http://www.rl.gov/rils. On the left hand side of the next page, select MSDS.

3. If a question of proper labeling occurs, contact Industrial Hygiene for assistance.

### 4.5 Transferring Hazardous Material to a Secondary Container

Employees

1. If chemicals are transferred from the original container to a secondary container, complete and affix a Hanford Hazard label to the secondary container in accordance with Attachment D. Complete all fields in the Hanford Hazard label - any labels with missing information are considered non-compliant.

NOTE: Chemicals transferred to portable containers for immediate

use do not require a full label but must have a content identification on the container.

NOTE: The label described in Attachment D is a new label that is superseding the old hazardous materials label. The old label will be acceptable until June 30, 2003, providing that it is already attached to a container and that it contains all of the information required in this procedure.

## 5.0 DEFINITIONS

No terms or phrases unique to this procedure are used.

## 6.0 RECORDS

No records are generated in the performance of this procedure.

## 7.0 SOURCES

### 7.1 Requirements

1. 29 CFR 1910, Subpart Z, "Toxic and Hazardous Substances." (S/RID)
2. 29 CFR 1910.1200(h)(3). (S/RID)
3. 29 CFR 1910, Section 1450, "Occupational exposure to hazardous chemicals in laboratories," paragraph (f), "Employee information and training", paragraphs (1), (2), and (4)(I).
4. 29 CFR 1926, Subpart Z, "Toxic and Hazardous Substances." (S/RID)
5. RPP-MP-003, "Integrated Environment, Safety, and Health Management System Description for the Tank Farm Contractor."

### 7.2 References

1. DOE O 440.1A, 03-27-98, Attachment 2, Section 12.a.
2. DOE O 440.1A, 03-27-98, Attachment 2, Section 18.i.
3. 29 CFR 1910, Subpart H, "Hazardous Materials," Section 120, "Hazardous Waste Operations and Emergency Response."
4. American Conference of Governmental Industrial Hygienists, "Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment."
5. TFC-BSM-CP_CPR-C-01, "Purchasing Card (P-Card)."
6. TFC-BSM-CP_CPR-C-06, "Procurement of Items (Materials)."
7. TFC-ESHQ-IH-STD-11, "Carcinogen Control."

8. TFC-PLN-34, "Industrial Hygiene Exposure Assessment Strategy."

**Figure 1. Purchasing of Potentially Hazardous Material Flowchart.**

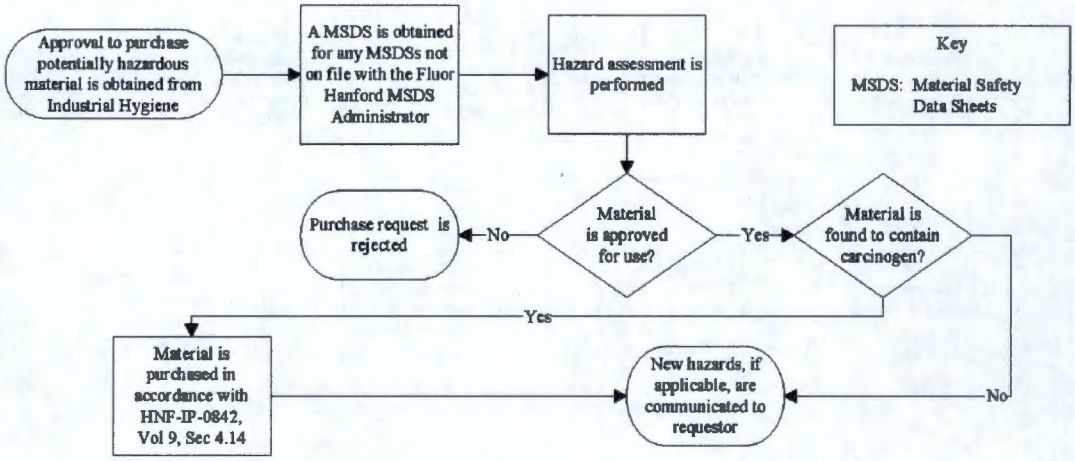



**Figure 2. Receiving Hazardous Material Flowchart.**

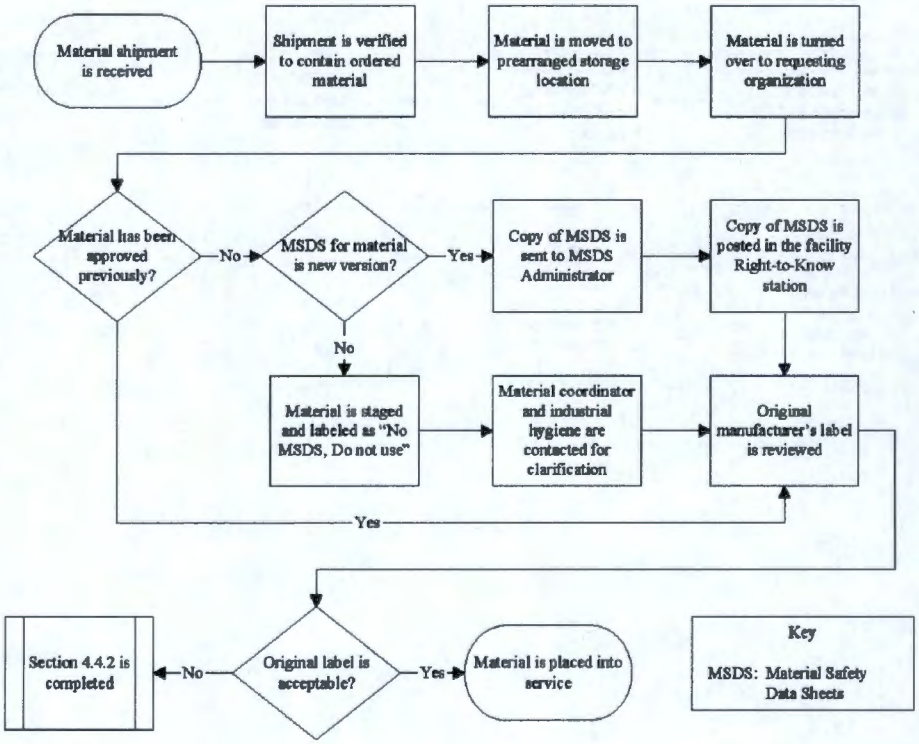


**Figure 3. Establishing and Maintaining "Right-to-Know" Stations Flowchart.**

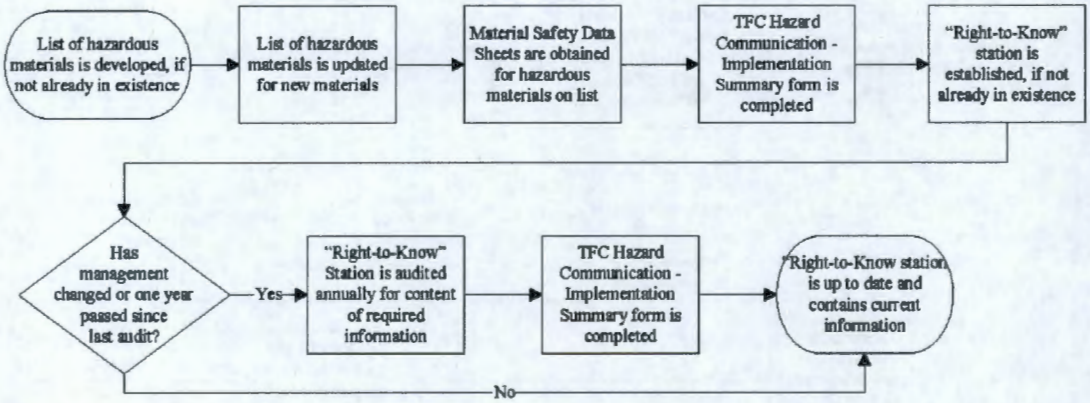
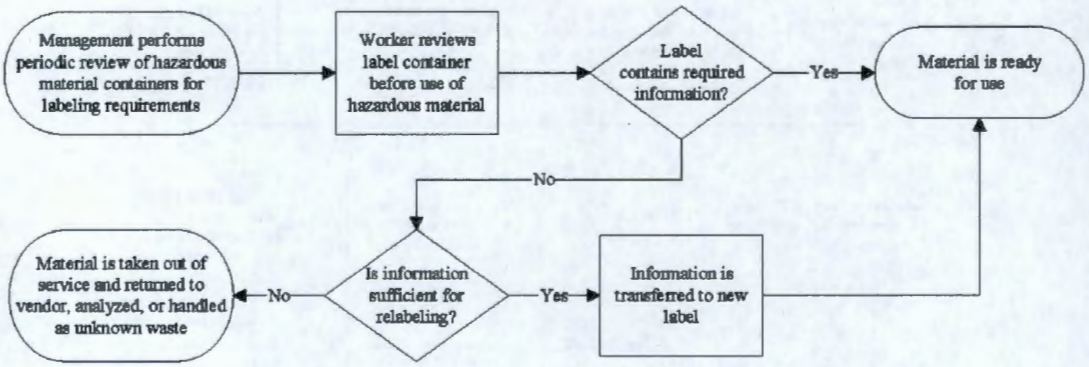



**Figure 4. Maintaining Original Material Container Label Flowchart.**



ATTACHMENT A - TECHNICAL CRITERIA FOR HAZARD COMMUNICATION

Carcinogen: A chemical is considered to be a carcinogen if any one of the following conditions exist:

- OSHA has designated it as a carcinogen in 29 CFR 1910, Subpart Z.
- It has been identified by the American Conference of Governmental Industrial Hygienists (ACGIH) as an A1 (Carcinogen) or A2 (Suspected Human Carcinogen).
- It has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen (Group 1, Group 2A or Group 2B).
- It is listed as a carcinogen or potential carcinogen in the "Annual Report on Carcinogens" published by the National Toxicology Program (NTP) (latest edition).

  NOTE: Assume mixtures present a carcinogenic hazard if they contain at least 0.1 percent in volume or weight of a carcinogen.

Hazard Assessment (Chemical):

The Industrial Hygiene Exposure Assessment Strategy (TFC-PLN-34) provides guidance for conducting the hazard assessment. The purpose of the hazard assessment is to fulfill OSHA and DOE O 440.1 requirements to determine if the chemical is a hazardous chemical per 29 CFR 1910.1200 definitions, to determine if it is a carcinogen to be controlled per TFC-ESHQ-IH-STD-11, to determine if substitution with a less hazardous chemical is feasible, to assure that the hazards are communicated to affected employees, to plan for necessary industrial hygiene assessments and/or exposure monitoring, to determine appropriate administrative and/or engineering controls and to determine appropriate personal protective equipment needs. This analysis must ensure that the planned hazardous chemical use falls within the established "safety envelope" of the facility/project. It can be accomplished through judicious use of professional judgment combined with knowledge of the facility/operations and hazard controls. Where appropriate, and when employee exposure is anticipated, the hazard assessment may be documented via such means as baseline hazard assessments, Job Hazard Analysis, etc.

Hazardous Chemical: means any chemical that is a physical hazard or a health hazard.

1. Consider chemicals listed in these publications to be hazardous:
   - American Conference of Governmental Industrial Hygienists, "Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment" (latest edition)
   - OSHA 29 CFR 1910, Subpart Z, "Toxic and Hazardous Substances."
2. Consider a chemical to be hazardous if the material safety data sheet or other recognized resource, such as National Institute for Occupational Safety and Health (NIOSH) recommendations, indicates the chemical or product possesses any of the following hazard indicators.

ATTACHMENT A - TECHNICAL CRITERIA FOR HAZARD COMMUNICATION (cont.)

| | |
|---|---|
| • Highly toxic | • Strong acid (low pH<2) |
| • Other hazard indicators | • Hazardous decomposition products |
| • Carcinogenic | • Strong base (high pH>12) |
| • Oxidizer | • Highly toxic |
| • Chronically toxic | • Target organ effect indicated |
| • Peroxide or peroxide former | • Incompatible storage |
| • Combustible liquid | • Teratogenic |
| • Poison | • Eye/skin/respiratory irritant |
| • Compressed gas | • Toxic |
| • Polymerization can occur | • Low temperature storage |
| • Corrosive | • Unstable/reactive |
| • Reactive | • Mutagenic |
| • Explosive | • Water reactive |
| • Reproductive hazard | • Sensitizer |
| • Flammable liquid | • Flammable solid. |

Information (Employees): Per OSHA criteria, employee hazard communication information is the following:
(7.1.3)

- The requirements of 29 CFR 1910.1200
- Any operations in their work area where hazardous chemicals are present, and
- The location and availability of this procedure (the written Hazard Communication Program) including the required list(s) of hazardous chemicals, and MSDSs (e.g. Right to Know Station).

Training: Employee training shall include at least:
(7.1.3)

- Methods and observations that may be used to detect the presence or release of hazardous chemicals in the work area (such as continuous monitoring devices, visual appearance, and odors)
- Safe work practices for the chemical and physical agents present in their work place and work area
- What controls are in place to ensure exposures are reduced below OSHA established limits or limits set by the American Conference of Governmental Industrial Hygienists (ACGIH) (whichever is most restrictive)
- How to safely perform non-routine (infrequent, unfamiliar, or out of the ordinary) tasks involving hazardous chemicals or physical agents
- Hazards associated with chemicals in overhead and other piping systems
- Information about the physical and health hazards of chemicals in the work area

ATTACHMENT A - TECHNICAL CRITERIA FOR HAZARD COMMUNICATION (cont.)

- Measures that the employee can use to protect themselves from the hazards, including specific written procedures to follow and safety requirements
- Hazards they may be exposed to when working on or near another work site controlled by other employees or employers
- The details of this program, including an explanation of the labeling system, the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

## TFC HAZARD COMMUNICATION – IMPLEMENTATION SUMMARY

FACILITY COVERED: [_____]
Print AREA / FACILITY NAME in this space

MANAGER RESPONSIBLE FOR HAZARD COMMUNICATION IMPLIMENTATION AT THIS FACILITY:
[_____]
Print LINE MANAGER'S NAME in this space

THE WORKER RIGHT-TO-KNOW STATION FOR THE ABOVE NOTED FACILITY IS LOCATED AT:
[_____] AND CONTAINS THE FOLLOWING DOCUMENTS:
Print LOCATION OF WORKER RIGHT-TO-KNOW STATION in this space

- A COPY OF THE CH2M HILL HANFORD GROUP WRITTEN HAZARD COMMUNICATION PROCEDURE (TFC-ESHQ-S_IH-C-02)
- A CURRENT LIST OF HAZARDOUS CHEMICALS LOCATED IN THIS FACILITY
- CURRENT MATERIAL SAFETY DATA SHEETS FOR EACH CHEMICAL IN THE ABOVE LIST

THE INDIVIDUAL TASKED WITH MAINTAINING THIS STATION IS: [_____]
Print INDIVIDUAL'S NAME in this space

ALL PRODUCTS CONTAINING HAZARDOUS CHEMICALS MUST BE LABELED WITH THE ORIGINAL MANUFACTURER'S WARNING LABEL OR A HANFORD HAZARD LABEL.

ANY VENDOR, CO-CONTRACTOR OR SUB-CONTRACTOR MUST CONTACT CENTRAL COMMAND AND CONTROL PRIOR TO PERFORMING WORK AT THIS FACILITY THAT MAY EXPOSE FACILITY PERSONNEL TO CHEMICAL HAZARDS.

BEFORE USING ANY PRODUCT THAT IS NOT ON THE INVENTORY LIST IN THIS FACILITY, CONTACT THE INDIVIDUAL MAINTAINING THIS RIGHT-TO-KNOW STATION!!

Signature _____ Date_____
LINE MANAGER Identified Above

*This form must be reviewed and signed annually by the responsible manager to validate responsible individuals

**ATTACHMENT C - LOCATION OF TFC WORKER RIGHT-TO-KNOW STATIONS AND CHEMICAL STORAGE AREAS**

| Station Location | Responsible Manager |
|---|---|
| 242-A Evaporator Facility | WFO Shift Operations Manager |
| 272-AW Maintenance Shop | WFO Maintenance Manager |
| 272-S Paint Shop | CO Maintenance Paint/Insulation Manager |
| 272-S Sign Painter Shop | CO Maintenance Paint/Insulation Manager |
| 272-S Insulation Shop | CO Maintenance Paint/Insulation Manager |
| 616 Building | Waste Management Services Manager |
| 2101-HV Warehouse | CO Maintenance Manager |
| 2101-M Vent & Balance | Manager, Vent & Balance |
| 2704-HV IH Shop | Environmental Health Program Manager |
| 2704-HV Receiving Area | 2704-HV Facilities Manager |
| 2713-WB | Retrieval Operations Manager |
| 2715-AW Operations Storeroom | 272-AW Operations Field Supervisor |
| 2750-E Receiving Area | 2750-E Facilities Manager |
| MO-979 | WFO Radiological Control Manager |

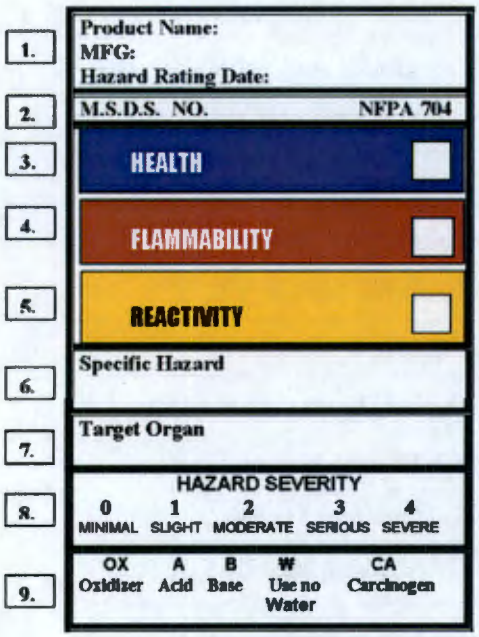
Key:

WFO: Waste Feed Operations
CO: Closure Operations

ATTACHMENT D – HANFORD HAZARD LABEL

# Hanford Hazard Label Instructions

**NOTE: All fields in the Hanford Hazard label are mandatory! The only source for all required MSDS Hanford Hazard Label information is the RIM Information Locator System (RILS), or when RILS is unavailable, the MSDS Administrator (376-2557). Labels with any missing information will be considered non-compliant.**




1. Block 1 requires three fields of information (as provided by the MSDS Administrator):
   - Chemical/**Product Name**, including Product code/number if applicable
   - Chemical/product MFG. **(Manufacturer or Distributor)**
   - **Hazard rating Date**

2. Block 2 requires the six digit **Hanford MSDS Number** only. NFPA 704, is for information only.

3. Block 3 requires the NFPA **Hazard Severity** rating number for **HEALTH**, as provided by the MSDS *Administrator*.

4. Block 4 requires the NFPA **Hazard Severity** rating number for **FLAMMABILITY**, as provided by the MSDS Administrator.

5. Block 5 requires the NFPA **Hazard Severity** rating number for **REACTIVITY**, as provided by the MSDS Administrator.

6. Block 6 requires the **Specific Hazard(s)** (as identified in Block 9 of label) that may apply (as provided by the MSDS Administrator).

7. Block 7 requires **Target Organ(s)**, as provided by the MSDS Administrator.

8. Block 8 for information only placed in Blocks 3, 4, 5, (do not circle).

9. Block 9 for information only (to be placed in Block 6, as provided by the MSDS Administrator).

Ownership matrix

## TABLE OF CONTENTS


1.0 PURPOSE AND SCOPE ..... 2
2.0 IMPLEMENTATION ..... 2
3.0 RESPONSIBILITIES ..... 2
4.0 PROCEDURE ..... 2
4.1 General Requirements ..... 2
4.2 Evaluation of Existing Electrical Conductors or Equipment ..... 4
4.3 Procurement of New Electrical Conductors or Equipment ..... 5
5.0 DEFINITIONS ..... 7
6.0 RECORDS ..... 7
7.0 SOURCES ..... 8
7.1 Requirements ..... 8
7.2 References ..... 8


## TABLE OF FIGURES


Figure 1. New Electrical Equipment Process Flow. ..... 9
Figure 2. Sample CH2M HILL Evaluated Product Label ..... 10


## TABLE OF TABLES


Table 1. Excluded Equipment Criteria ..... 10


## TABLE OF ATTACHMENTS


ATTACHMENT A - AHJ CRITERIA FOR "LEGACY"/"NEW" EQUIPMENT EVALUATIONS ..... 11

## 1.0 PURPOSE AND SCOPE

This procedure provides the process for the National Recognized Testing Laboratory (NRTL) approval process to provide assurance that electrical conductors or equipment are safe to use in the CH2M HILL Hanford Group, Inc. (CH2M HILL) workplaces. The procedure provides steps to assure existing electrical equipment is safe to operate by CH2M HILL employees and that new equipment is purchased and maintained in accordance with the OSHA NRTL requirements.

This procedure requires that new and existing electrical conductors or equipment installed or used within CH2M HILL Hanford Group, Inc. CH2M HILL facilities (except equipment meeting Table 1 criteria), be listed and labeled by a nationally recognized testing laboratory (NRTL) or approved by the CH2M HILL Authority Having Jurisdiction (AHJ) for the National Electrical Code (see NFPA 70(NEC) Article 110.2). Electrical equipment types include installed hard-wired equipment, portable power tools, electrical appliances, portable sampling equipment, generators, cord sets, and other cord and plug connected electrical equipment.
(7.1.1, 7.1.2, 7.1.3)

## 2.0 IMPLEMENTATION

This procedure is effective on the date shown in the header.

## 3.0 RESPONSIBILITIES

Responsibilities are contained within Section 4.0.

## 4.0 PROCEDURE

### 4.1 General Requirements

1. Labeling of equipment by an NRTL (e.g., Underwriters Laboratories, (UL), Canadian Standards Association (CSA), FM Approvals (FM), etc.) is evidence that the complete equipment item has been tested by the NRTL and found to be free from reasonably foreseeable risk of fire, electric shock and related hazards. Individual equipment components of a product are not required to be labeled by the NRTL. However equipment components such as electric motors may be listed and labeled as a recognized component (e.g., RU for UL recognized component).

2. Electrical conductors or equipment purchased or acquired after October 13, 2003 shall be listed or labeled by an NRTL that is approved by OSHA. Electrical conductors or equipment products bearing an NRTL label can be used without further investigation. Electrical conductors or equipment that are non-NRTL labeled may be field evaluated and labeled by an NRTL or evaluated and approved CH2M HILL in accordance with this procedure.

NOTE: It is the responsibility of the project or facility responsible for procurement, installation, and use of electrical conductors or equipment to perform the research necessary to determine whether NRTL listed and labeled products are available (an AHJ member may be contacted for assistance and CH2M HILL's Procurement & Materials Management organization can assist the project or facility in conducting research of potential vendors.

3. Electrical conductors or equipment acquired prior to October 13, 2003 (legacy equipment) may remain in service, as long as it has not been modified, found to be defective, or damaged and does not present a hazard to the workers. Replacement equipment (e.g., like-kind replacement) is not to be considered legacy equipment and shall follow the process delineated in Section 4.3.

   NOTE: Electrical conductors or equipment that is suspected of being unsafe shall be immediately removed from service and shall be inspected by a qualified electrician to ensure compliance with NEC section 110.3, "Examination, Identification, Installation and use of Equipment."

4. Newly procured electrical conductors or equipment that are not listed and labeled by an NRTL may be used after being approved for use by the CH2M HILL AHJ, based on the completion of an electrical safety evaluation (see Section 4.2).

5. Non-labeled legacy electrical conductors or equipment that is removed from service for routine preventive maintenance and calibration may be restored to service following such maintenance. This maintenance may not include modifications but may include like-for-like replacement of parts.

6. Non-labeled legacy conductors or equipment that are removed from service for relocation and reinstallation into a different CH2M HILL facility or removed for service for modification must be evaluated and approved by the AHJ prior to being placed into operation (see Section 4.2).

   - Plug-in equipment can be moved within and between CH2M HILL facilities, unless the equipment is performing a different function than it was originally intended to perform.

   - Non-labeled legacy equipment that is modified, damaged, or used for other than its original intended function, must be re-evaluated and approved by the AHJ prior to being placing back into operation (see Section 4.2).

7. A CH2M HILL Field Evaluated Product Evaluation Label (BL-6004-154, see Figure 2) shall be placed on electrical equipment that has been evaluated in accordance with the criteria identified in the Non-NRTL Electrical Equipment AHJ Approval Form (A-6004-085) and the Non-NRTL Electrical Equipment Evaluation Form (A-6004-086).

8. Electrical equipment that fails to meet the safety criteria identified in the Non-NRTL Electrical Equipment Evaluation Form (A-6004-086) shall be immediately removed from service and subsequently repaired/replaced. The applicable testing categories for different types of equipment are identified in Table 2.

**4.2 Evaluation of Existing Electrical Conductors or Equipment**

Equipment Custodian

1. Identify a need to use an existing Electrical Conductor or equipment item.

2. If the existing item was procured prior to October 13, 2003, proceed to step 3; otherwise proceed to step 4.

Responsible Engineer

3. Determine if the item is in service; has not been modified and is free from electrical hazards.

   a. If yes, no further action is necessary, exit this procedure.
   b. In no, proceed to step 4.

   NOTE: If the equipment was procured prior to October 13, 2003 and the equipment that is installed, serviceable, and in the configuration intended at installation can remain in service with no further evaluation as long as it poses no evident electrical hazard.

4. Determine if the item can be radiologically released to perform an NRTL field evaluation.

   a. If yes proceed to step 5
   b. If no, proceed to step 7

5. Determine if a UL category exists for the item.

   NOTE: The UL online certifications directory or UL equipment directories can be used to determine if a category for the legacy item exists and to verify the UL listing or classification, or listed product use. Contact the AHJ if assistance is required to make this determination.

   a. If a UL category exists go to step 6.
   b. If there is no UL category go to step 7.

Procurement/ Material Services

6. Prepare a SOW and contract requisition per TFC-BSM-CP_CPR-C-05. Upon completion of the NRTL field evaluation and receipt of the report and placement of the NRTL label on the item/equipment, exit the procedure.

   NOTE NRTL Field Evaluations are performed by OHSA approved Testing Laboratories.

Responsible Engineer/NEC Inspector/Electrician

7. Perform a CH2M field evaluation, using forms A-6004-085 and A-6004-086, in accordance with TFC-ESHQ-S_JS-CD-06.

| | | |
|---|---|---|
| | 8. | Submit the completed forms to the engineering member of the AHJ for review the completed forms. |
| AHJ | 9. | Review the completed forms and render a decision for either approving or not approving the request. |
| Engineering AHJ Member | 10. | Inform operations management and the responsible individual of the AHJ decision. |
| | 11. | Document the NRTL reports and post them on the CH2M HILL electrical safety webpage. |
| Responsible Engineer/NEC Inspector/Electrician | 12. | Upon approval by the AHJ, install a tag on the equipment as shown in Figure 2. |

### 4.3 Procurement of New Electrical Conductors or Equipment

| | | |
|---|---|---|
| Originator/Requestor | 1. | Identify the need to procure electrical conductors or equipment and identify manufacturer(s) or supplier(s) that have NRTL listed and labeled products that meet the need.<br><br>NOTE: The UL online certifications directory or UL hardcopy product directories can be used to verify a UL listing or classification, or listed product use.<br><br>a. If there are manufacturer(s) or supplier(s) that can supply NRTL listed and labeled equipment, continue to step 4.<br><br>b. If there are no manufacturer(s) or supplier(s) that can supply NRTL listed and labeled equipment, go to step 2. |
| | 2. | Determine if there are other manufacturer(s) or item(s) that can meet the need and provide NRTL listing/labeling of the item(s).<br><br>a. If yes, select this manufacturer(s) or items(s) and proceed to step 4.<br><br>b. If this is the only item that will perform the functions required proceed to step 3. |

3. Determine if a UL category exists for the item.

   NOTE: The UL online certifications directory or UL equipment directories can be used to determine if a category for the legacy item exists and to verify the UL listing or classification, or listed product use. Contact the AHJ if assistance is required to make this determination.

   a. If a UL category, add the requirement to the BOM/MR to perform an NRTL Field Evaluation as part of the procurement and proceed to step 4.

   b. If there is no UL category that exists, note on the BOM/MR that a CH2M Field Evaluation will be required upon receipt of the item, then proceed to step 4.

4. Prepare a BOM/MR per TFC-BSM-CP_CPR-C-06 which includes the name of the approved manufacturer(s) and the equipment model numbers or the name of supplier(s) and type of electrical conductors or equipment and the applicable requirements for NRTL listing and labeling.

   a. For Quality Level 0 items include in the special instructions.

   b. For Quality Level 1, 2 and 3 add Quality Clause B65 (as applicable requiring receipt inspection)

   NOTE: Many electrical conductors and equipment items such as conduit, wire, cable and fittings are specified by size and type. As such, these items may not include a manufacturer and part number, but instead a description or specification (e.g., 14/3 type THHN/THWN cable, 1 ½ in PVC coated RMC, etc.).

Responsible Engineer

5. Confirm the manufacturer/supplier will supply electrical conductors or equipment that meet the NRTL listed and labeling requirements identified by the Originator/Requestor and will provide the appropriate documentation when required, then procure the item.

6. For QL 0, submit to Procurement. For QL 1, 2 or 3, obtain Quality Assurance Approval, then submit the BOM/MR to procurement.

Procurement/ Material Services

7. Confirm prior to receipt of the electrical conductor or equipment that it bears an NRTL field evaluation label and that documentation of the evaluation will be provided.

   a. If yes, proceed to step 8.

b. If a CH2M HILL Field Evaluation is identified on the BOM/MR then go to Section 4.2, step 7.

Originator/Requestor 8. Confirm the conductor or equipment items are NRTL listed and labeled or field evaluated after the items are received, then exit this procedure.

## 5.0 DEFINITIONS

Electrical Authority Having Jurisdiction (AHJ). The team established by TFC-ESHQ-S-STD-03 that is responsible for approving electrical equipment, materials, installations and procedures.

Electrical equipment. A general term including material, fittings, devices, appliances, luminaries (fixtures), apparatus, and the like used as part of, or in connection with, an electrical installation.

Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the AHJ and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the AHJ and concerned with evaluation or products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that the equipment, material, or services either meets appropriate designated standards or has been tested and found suitable for a specified purpose.

Nationally Recognized Testing Laboratory. (NRTL) means an organization which is recognized by OSHA and which tests for safety, and lists or labels or approves, equipment or materials.

Utilization equipment. Equipment that utilizes electric energy for electronic, electromechanical, chemical, heating, lighting, or similar purposes.

## 6.0 RECORDS

The following records are generated during the performance of this procedure:

| Record Description | Vital Record Y/N | QA Record Y/N | QA Record Retention L/NP | NARA Retention Schedule | Other Retention Requirements | Records Custodian |
|---|---|---|---|---|---|---|
| Non-NRTL Electrical Equipment AHJ Approval Form (A-6004-085) | N | Y | L | ADM-17.32a | N/A | Engineering Standards |
| Non-NRTL Electrical Equipment Evaluation Form (A-6004-086) | N | Y | L | ADM-17.32a | N/A | Engineering Standards |

The identified record custodian is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.

## 7.0 SOURCES

### 7.1 Requirements

1. 29 CFR 1910 Subpart S, U. S. Department of Labor Regulations, "Occupational Safety and Health Standards, Electrical, 1910.303, "General Requirements."

2. NFPA 70 National Electric Code.
   a. NEC Article 110-2.
   b. NEC Article 110-3.

3. 29 CFR 1926 Subpart K, U.S. Department of Labor Regulations, "Occupational Safety and Health Standards, Electrical, 1926.403, "General Requirements."

### 7.2 References

1. TFC-ESHQ-S-STD-03, "Electrical Safety."

2. TFC-BSM-CP_CPR-P-06, "Procurement of Items."

3. TFC-BSM-IRM_DC-C-02, "Records Management."

4. TFC-ESHQ-S_IS-CD-06, "Electrical Equipment Evaluation Form."

**Figure 1. New Electrical Equipment Process Flow.**

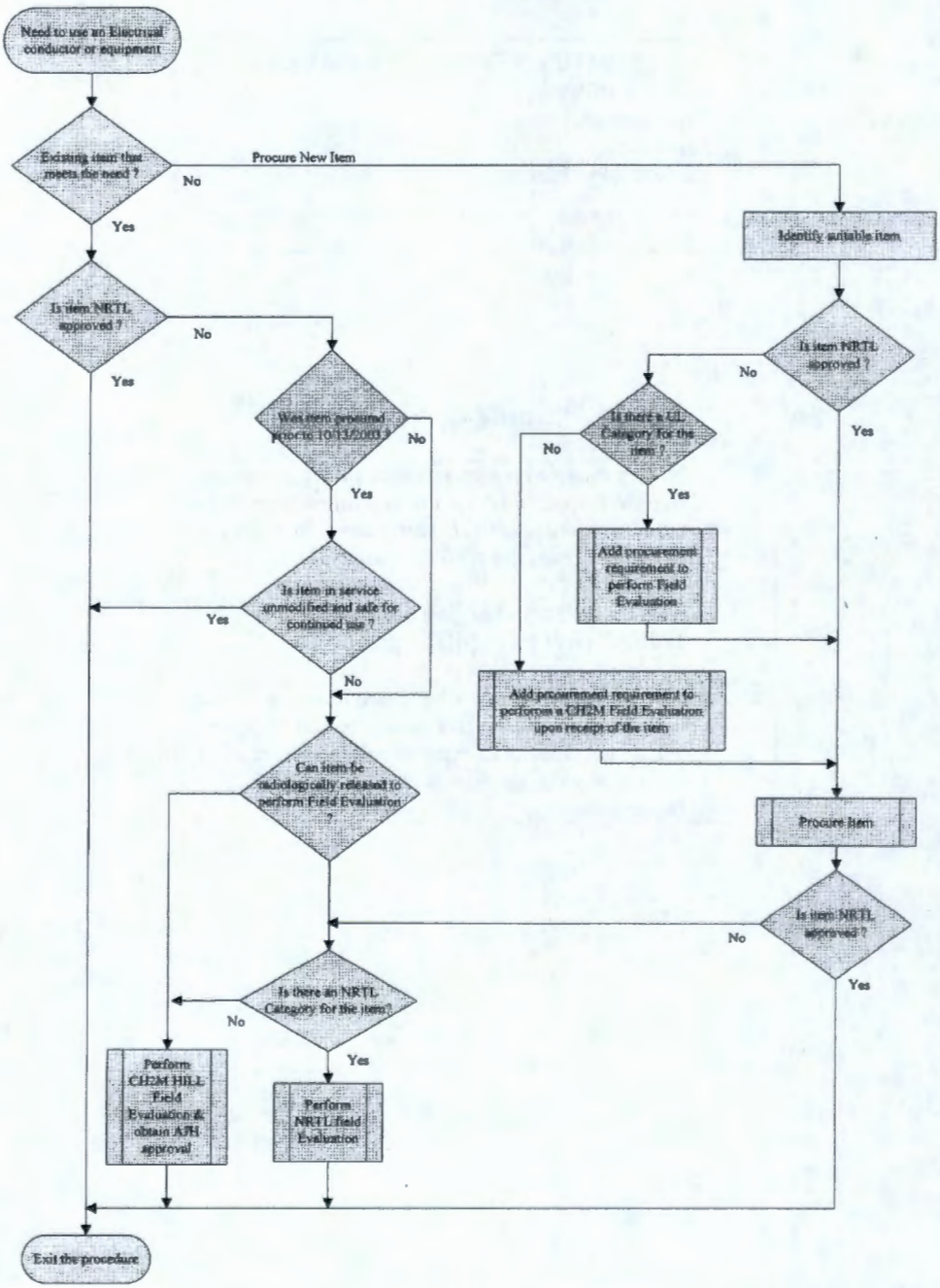


**Figure 2. Sample CH2M HILL Evaluated Product Label.**

CH2M FIELD EVALUATED PRODUCT
AHJ Report No _____
Manufacturer _____
Serial No _____
Evaluated by (Print/sign) Date
_____
BL-6004-154

**Table 1. Excluded Equipment Criteria**

| | |
|---|---|
| 1. | Battery operated equipment with internal voltages that do not exceed 50 Volts and do not connect to external voltage sources that exceed 50 volts are exempted from the NRTL requirements.<br><br>NOTE: Battery charging devices that utilize 120VAC do require NRTL approval. |
| 2. | Instrumentation and other electronic equipment with internal voltages that do not exceed 50 Volts and do not connect to external voltage sources that exceed 50 volts are exempted from the NRTL requirements. |

## ATTACHMENT A - AHJ CRITERIA FOR "LEGACY"/"NEW" EQUIPMENT EVALUATIONS

**Background**

ORP and the Tank Farm Contractor activities must separately address equipment issues associated with "legacy" equipment. Legacy equipment is equipment that was constructed or procured without specific defined standards in place.

**Position**

Whereas the design and construction specifications of the applicable standards are acknowledged to have safety value, the AHJ recognizes that not all non-NRTL equipment completely conforms to the standards, particularly older "legacy" equipment. Nevertheless, it is possible to make a determination that such equipment is acceptable for use under specified conditions in the workplace. Equipment is not automatically rejected if it does not comply with all parts of a given standard. Instead, the AHJ will use the standards and the checklist as guidance to determine the safety and acceptability of an electrical assembly.

For "legacy" equipment, the criteria for equipment rejection must be based on the technical assessment of the AHJ that the design or construction of the subject equipment presents a reasonable possibility of fire, shock, or other hazard to the user or other personnel.

For "new" equipment, the criteria for equipment rejection must be based on both the technical assessment of the AHJ that the design or construction of the subject equipment presents a reasonable possibility of fire, shock, or other hazard to the user or other personnel, and/or the subject equipment fails to be in conformance with currently applicable standards.

**Case: Wiring Color-Code**

Wiring color-codes are important for safe maintenance, modification, or repair processes of electrical equipment. The wiring color-code, by itself, is not a safety factor in the safe operation of electrical equipment. In the case of "legacy" equipment, it may be appropriate for the AHJ to accept equipment that is not wired in exact conformance with an established color-code. Any variations such as this are required to be documented in the checklist and field report. Note that the AHJ has a great deal of flexibility here. If, for example, the AHJ finds the as-built color-coding might be misinterpreted and create a hazard to an operator or technician, the AHJ may require a warning label to this effect as a condition of approval. The AHJ also has the option of failing the assembly if he/she does not feel that the hazard can be effectively mitigated.

Ownership matrix

## TABLE OF CONTENTS


1.0 PURPOSE AND SCOPE ..... 2
2.0 IMPLEMENTATION ..... 2
3.0 STANDARD ..... 2
- 3.1 Roles and Responsibilities ..... 2
- 3.2 Electrical Safety Training ..... 4
- 3.3 Electrical Equipment Approval Requirements ..... 5
- 3.4 Installation/Modification Requirements ..... 5
- 3.5 Electrical Safe Work Practices ..... 6
- 3.6 Ground Fault Circuit Interrupters ..... 7
- 3.7 Receptacle Outlets ..... 8
- 3.8 Assured Equipment Grounding ..... 9
- 3.9 Working on or Near Live Parts ..... 9
- 3.10 Working Within the Limited Approach Boundary or Flash Protection Boundary ..... 9
- 3.11 Resetting Tripped Protective Devices ..... 10
- 3.12 Performing Work Affecting Electrical Utilities ..... 11
- 3.13 Drilling into Walls, Floors, or Outdoor Slabs and Excavations Containing Buried Electrical Cables ..... 11
- 3.14 Shift Routines, Inspections, and Surveillances ..... 12

4.0 DEFINITIONS ..... 12
5.0 SOURCES ..... 13
- 5.1 Requirements ..... 13
- 5.2 References ..... 14


## TABLE OF ATTACHMENTS


ATTACHMENT A – ELECTRICAL HAZARDS AND CONTROLS ..... 15

## 1.0 PURPOSE AND SCOPE

(5.1.1, 5.1.2, 5.1.3.a, 5.1.4, 5.1.5, 5.1.18, 5.1.19)

This standard establishes the CH2M HILL Hanford Group, Inc. (CH2M HILL) Electrical Safety Program (ESP). The electrical safety program provides the minimum requirements for safe electrical system design and installation, electrical safe work practices and defines electrical safety training for employees.

This standard applies to all CH2M HILL Hanford Group, Inc. (CH2M HILL) and subcontractor employees. This standard does not apply to equipment or installations that are under the exclusive control of Electrical Utilities (EU) for the purpose of metering, transmission and distribution of electrical energy.

## 2.0 IMPLEMENTATION

This standard is effective on the date shown in the header.

## 3.0 STANDARD

### 3.1 Roles and Responsibilities

#### 3.1.1 Vice President, Safety, Health, and Quality Assurance

Responsible for appointing a representative from the following work groups to serve as the Authority Having Jurisdiction (AHJ) for electrical matters:

- Engineering
- Electrical Craft
- Industrial Safety.

#### 3.1.2 Director, Safety Programs

- Appoints the Electrical Safety Program Coordinator (ESPC).

#### 3.1.3 Electrical Safety Program Coordinator

- Serves as chairperson of the CH2M HILL Electrical Safety Committee (ESC).
- Serves as the Industrial Safety AHJ member.
- Promotes and coordinates electrical safety initiatives within the company.
- Coordinates electrical safety initiatives and activities with DOE and other Hanford contractors.

#### 3.1.4 Vice Presidents of Waste Feed Operations, Closure Operations, and Analytical Technical Services

- Review and approve Energized Electrical Work Permits.

### 3.1.5 Maintenance and Operations Managers

- Ensure work group participation on the CH2M HILL ESC.
- Ensure that safe work practices described in National Fire Protection Association (NFPA) 70E-2004 are used by workers under their direction, including non-electrical workers who use portable electrical tools and equipment.
- Ensure that employees performing electrical work or using portable electric tools and equipment are qualified to safely perform their assigned task.
- Ensure that approved personal protective equipment (PPE) for electrical work, is provided and used by those workers who are exposed to electrical hazards. Electrical PPE shall provide a level of protection commensurate to the level of hazard.
- Ensure that workers exposed to electrical hazards do not wear clothing and accessories (e.g., meltable-fiber clothing and metallic objects) that may worsen injuries in the event of an electrical accident.

### 3.1.6 Director, Engineering Standards

- Identifies a qualified electrical engineer to serve as the Engineering AHJ member.
- Ensures that electrical system designs are compliant with NFPA 70-2005, National Electrical Code (NEC).
- Ensures that electrical drawings, facility modifications packages, and other design documents are in compliance with CH2M HILL standards.
- Ensures that qualified engineering support is available to perform shock hazard analysis, flash hazard analysis, and other analysis that may be required to support electrical safety.

### 3.1.7 Electrical Safety Committee Members

- Openly promote the ESC and electrical safety issues throughout the company by communicating regularly with craft, supervisors, managers and safety personnel to identify electrical safety concerns and suggestions for electrical safety program improvements.
- Review electrical safety incidents, including lessons learned and occurrence reports, to identify trends and ensure that corrective actions have been effectively implemented.
- Identify the need for new electrical safety initiatives.
- Identify opportunities for improving electrical safety awareness training and participate in the development and communication of such initiatives.
- Participate in electrical safety event investigations by serving as subject matter expert to the event investigation team.

- Participate in electrical safety assessments and inspections, ad hoc subcommittees, and special teams as assigned.

- Actively participate in scheduled ESC meetings.

### 3.1.8 Authority Having Jurisdiction (AHJ)
(5.1.17)

- Enforces and interprets the National Electrical Code (NFPA 70-2005) (NEC); Standard for Electrical Safety in the Workplace (NFPA 70E-2004); 29 CFR 1910, Subpart S; and 29 CFR 1926, Subpart K.

- Unanimously agrees to all decisions and interpretations.

- The Engineering Standards AHJ representative prepares and issues the formal documented interpretations of the AHJ.

- Ensures AHJ decisions and interpretations are documented in the ESC meeting minutes and published on the CH2M HILL Hanford Electrical Safety web page.

- Represents the CH2M HILL at external electrical safety meetings as appropriate (the ESC chairperson may assign others to perform this function).

- The Engineering Standards AHJ representative provides oversight of the company's NEC Inspector(s).

## 3.2 Electrical Safety Training
(5.1.2, 5.1.12, 5.1.13, 5.1.19)

1. All CH2M HILL and subcontractor employees shall attend electrical safety training, commensurate to their exposure to electrical hazards in accordance with 29 CFR 1910.332. The minimum electrical safety training shall include:

   - All employees take Hanford General Employee Training (HGET)

   - Workers who may be exposed to electrical hazards shall have electrical safety training, commensurate to their assigned duties, as identified and listed in their ITEM Training Profile

   - Refresher training, to update regulations and electrical safety criteria, should be provided at intervals not to exceed three years.

2. Electrical workers (electricians) shall attend First Aid training. This training shall be repeated at intervals not to exceed two years.

3. All employees that work on de-energized electrical components being controlled by a lockout/tagout must be trained as an authorized worker in accordance with TFC-OPS-OPER-C-05.

4. First line managers, field work supervisors, and persons-in-charge (PICs) shall receive the same level of electrical safety training as the workers for whom they supervise if those workers have the potential to be exposed to electrical hazards.

5. A pre-job briefing shall be conducted in accordance with TFC-OPS-MAINT-C-02 before starting work.

### 3.3 Electrical Equipment Approval Requirements
(5.1.2, 5.1.5, 5.1.6, 5.1.7, 5.1.8, 5.1.9, 5.1.12, 5.1.14)

1. All electrical equipment installed or used within CH2M HILL shall be approved by the AHJ per Article 110.2 of NFPA 70-2005, NEC.

2. Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees and used and stored in accordance with 29 CFR 1910.302, 303, and 333.

3. Electrical equipment is approved, and therefore acceptable for use in accordance with the approval, under the following conditions:

   - The manufacture's name, trademark, or other descriptive makings identifying the organization responsible for the product is on the equipment and is legible

   and

   - If it is accepted, or certified, or listed, or labeled, or otherwise determined to be safe by an OSHA recognized nationally recognized testing laboratory (NRTL), as indicated by an NRTL label applied by the manufacturer

   or

   - If it has been labeled by an NRTL representative following an NRTL field evaluation

   or

   - After non-listed equipment has been field tested and found to be acceptable in accordance with the guidelines established by the AHJ.

   NOTE: Electrical equipment acquired prior to October 13, 2003 (legacy equipment) may remain in service, so long as it has not been modified, found to be defective, or damaged, and does not present a level of hazard to the workers.

   NOTE: Nationally recognized testing laboratories are listed on the OSHA web site at http://www.osha.gov/dts/otpca/nrtl/index.html.

### 3.4 Installation/Modification Requirements

1. Wiring design and protection shall be developed and installed by qualified personnel and verified compliant with the NEC and applicable 29 CFR 1910.304 and 305 requirements.

2. NEC inspections are required for all new electrical installations and modifications to existing electrical installations covered by the most current edition of the NEC.

3. All electrical installations, systems, wiring, and connected utilization equipment shall, be maintained in a safe condition free from recognized hazards that are likely to harm employees. Unsafe electrical systems and equipment that present an imminent hazard to personnel shall be de-energized and removed from service until repaired or replaced, unless de-energizing would introduce additional or increased hazards.

   NOTE: Refer to TFC-PRJ-P-C-02 for specific details regarding how to request NEC inspections.

## 3.5 Electrical Safe Work Practices
(5.1.2, 5.1.10, 5.1.11, 5.1.12, 5.1.15, 5.1.16, 5.1.19)

This section applies to all electrical work > 50 volts that is capable of more than 1 milliamp (mA) of current. 1mA is the approximate threshold of perception for 60Hz AC current, and it is not an electrical shock or arc flash hazard.

NOTE: Personnel may perform electrical work only to the level for which they have been trained, qualified, and authorized to perform.

1. The requirements of the lockout/tagout program, as described in TFC-OPS-OPER-C-05, must be used for the control of unexpected releases of hazardous energy or materials.

2. Electrical hazards shall be mitigated utilizing the controls provided in Attachment A.

3. In accordance with 29 CFR 1910.335, appropriate signs, tags, barricades, or attending personnel shall be used to warn and protect employees from hazards that could cause injury due to electric shock, burns, or failure of electric equipment parts.

4. Equipment, not cord and plug and circuits, capable of being energized, must be treated as live if they are not locked out and tagged out in accordance with TFC-OPS-OPER-C-05. Equipment with a cord and plug can be considered de-energized when the plug is under the direct control of the qualified person performing the work.

5. When work is performed on or near equipment or circuits that are or may be energized, safety-related work practices must be employed to prevent electrical shock, flash burns, or other injuries resulting from either direct or indirect electrical contacts in accordance with 29 CFR 1910.335. Specific safety-related work practices shall be consistent with those identified within NFPA 70E-2004 and 29 CFR 1910.303 for potential hazards associated with the type of work being performed.

6. Live parts to which an employee may be exposed shall be put into an electrically safe work condition before an employee works on or near them (within the limited approach boundary), unless work on energized components can be justified in accordance with Article 130.1 of NFPA 70E-2004 and 29 CFR 1910.303 and 333.

7. Managers shall ensure that all workers are provided with protective clothing and PPE that is appropriate for the potential shock or arc flash to which they may be exposed in accordance with 29 CFR 1910.335.

8. Non-conducting and insulating equipment must be used and stored according to the manufacturer's instructions.

9. Electrical protective equipment shall be verified (before use) to have satisfied all required tests, e.g., rubber gloves have been air tested. Electrical protective equipment that has an expired testing date or fails visual or functional inspection must be removed from service.

   NOTE: Electrical protective equipment repair must be performed by qualified personnel.

10. Only NRTL approved equipment shall be used for performing electrical testing. All electrical test equipment shall be designed, rated, and approved for their intended use. It shall be visually inspected for external damage before each use. Damaged or defective equipment shall be immediately removed from service.

11. Non-contact, or proximity voltage testers, shall not be used to verify an electrically safe work condition for purposes of hazardous energy control.

12. In accordance with 29 CFR 1910.303, 305, and 334; all portable electric equipment, including flexible extension cord sets, shall be approved and suitable for its intended use. It shall be visually inspected for external damage (such as loose parts, deformed and missing pins, or damage to outer jacket) and for evidence of internal damage (such as pinched or crushed outer jacket) before being used on any shift. Damaged or defective equipment shall be immediately removed from service and not be used. Flexible cords and cables will be protected from accidental damage. Sharp corners and projections shall be avoided.

    NOTE: Cord and plug connected equipment and extension cord sets that remain connected once they are put in place and are not exposed to damage are not required to be visually inspected until they are relocated.

13. Special purpose equipment and installation (electric signs, electric welders, elevators, cranes, etc.) shall be evaluated on a case-by-case basis and safeguarded in accordance with 29 CFR 1910.306 and the appropriate sections of the NEC.

14. Electrical installations or equipment use in hazardous locations (containing flammable vapors, liquids, gases, etc.) shall be evaluated on a case-by-case basis and safeguarded in accordance with 29 CFR 1910.307 and the appropriate sections of the NEC.

15. Special systems (over 600 volts, emergency power, etc.) shall be evaluated on a case-by-case basis and safeguarded in accordance with 29 CFR 1910.308 and the appropriate sections of the NEC.

16. Extension cords shall not be connected in series (daisy-chained). Extension cords will be unplugged and stored when not in use.

17. Relocatable power taps and transient voltage surge suppressors shall be connected only to permanently installed branch circuit receptacles. They shall not be connected (daisy chained) to other power taps, surge suppressors, or to extension cords.

### 3.6 Ground Fault Circuit Interrupters

1. Ground Fault Circuit Interrupter protection (GFCI) for personnel protection shall be provided and used whenever portable electrical tools and equipment are used with

temporary wiring methods or extension cord sets for construction, repair, maintenance, remodeling, and similar activities. This applies to portable tools and equipment connected to 125 volt, single phase, 15-, 20-, 30-amp receptacle outlets.

2. Portable electrical tools and equipment that is being used out of doors or in damp or wet locations shall always be provided with GFCI protection.

3. Ground fault circuit interrupters (GFCIs) shall be installed as required by the NEC, including:

   - On 125 volt outside receptacles
   - Within six feet of a sink or an outside door
   - In damp or wet (standing water) work areas
   - On all 125 volt receptacles that are not part of the permanent structure wiring (including extension cords) and that are in use by personnel.

4. Permanently installed GFCIs shall be tested monthly in accordance with the manufacturer's instructions.

5. Portable GFCIs shall be tested before each use. The test sequence is:

   - A visual inspection is performed to detect any obvious defects, broken or damaged parts. Any GFCI that is determined to be defective in any way shall be immediately removed from service.

   - The reset button is pressed and it is verified that voltage is provided at the outlet.

   - The test button is pressed and it is verified that there is no voltage at the outlet (this causes the GFCI to trip; a click can be heard or felt whenever the GFCI trips).

   - The reset button is pressed and it is verified that power has been restored at the outlet.

6. GFCIs that fail to respond as stated in this procedure shall not be used and management shall be informed of the failed test. A work request shall be initiated to have qualified electricians re-inspect, troubleshoot, and repair the GFCI so that it can be restored to service. Refer to 3-EDS-180, "Inspection and Test of Ground Fault Circuit Interrupter Receptacles and Circuit Breakers."

### 3.7 Receptacle Outlets

All 125 volt, single phase, 15-, 20-, 30-amp receptacle outlets that are not a part of the permanent wiring of the building or structure, and that are in use by personnel, shall have GFCI protection. If a receptacle is installed or exists as part of the permanent wiring of the building or structure and is used for temporary electrical power, GFCI interrupter protection for personnel shall be provided. Cord sets or devices incorporating GFCI protection for personnel identified for portable use shall be permitted.

**3.8 Assured Equipment Grounding**

1. A documented assured grounding program shall be continuously maintained for all cord sets, receptacles not part of the permanent wiring of the building or structure, and equipment connected by cord and plug that is used for construction, maintenance, repair, remodeling and similar activities if a greater hazard would be created if power was interrupted or if the receptacle outlets or the tools and equipment are of a design that is not compatible with GFCI protection, such as 480 volt equipment.

2. All cord sets, receptacles not part of the permanent wiring, and equipment connected by cord and plug shall be maintained in accordance with NFPA 70E-2004, Section 410.4(B)(2).

**3.9 Working on or Near Live Parts**

1. Electrical equipment shall be de-energized to the maximum extent feasible before crossing the limited, restricted, or prohibited approach boundary to perform work on the equipment.

2. Entry into an electrical approach boundary by a qualified worker requires an Energized Electrical Work Permit (A-6003-873), approved by the appropriate vice president.

   - Minimum clear distances shall be maintained from exposed electrical live parts in accordance with NEC and 29 CFR 1910.303 and 333.

3. The only work that can be performed on or near energized equipment, without an Energized Electrical Work Permit is the following:

   NOTE: The following exceptions require identification of known and potential hazards (shock and arc flash), identification of all required PPE and insulated tools, and identification of protective measures and equipment to be used when performing the work.

   - Working on energized parts that operate at LESS THAN 50 VOLTS potential
   - Testing and calibration of electrical equipment that can only be performed with the circuit energized under an existing approved procedure
   - Performing voltage and zero energy checks for lockout/tagout operations
   - Performing troubleshooting that requires the equipment to be energized.

   NOTE: Testing and troubleshooting are limited to those actions necessary to perform electrical measurements.

**3.10 Working Within the Limited Approach Boundary or Flash Protection Boundary**

1. A shock hazard analysis and an arc flash hazard analysis shall be completed and documented, in the work package, to identify hazards and determine appropriate safe work practices, protective clothing, and electrical PPE to be used before any person

approaches exposed live parts within the limited approach boundary or the flash protection boundary.

2. A flash protection boundary must be established based on the engineering analysis and the approach boundaries listed in NFPA 70E-2004, Table 130.2 (C), "Approach Boundaries to Live Parts for Shock Protection."

3. The flash protection boundary for systems operating at 600 volts and below shall be four feet.

4. Personal protective equipment for workers performing work within a flash protection boundary shall be determined based upon a Flash Hazard Analysis, in accordance with Article 130.3 (A) of NFPA 70E-2004.

5. At least two qualified workers shall be assigned to any work inside of a limited approach boundary or flash protection boundary of exposed parts operating at more than 300 volts phase to phase or phase to ground.

6. Work performed on energized electrical circuits, or near exposed live parts shall be performed on qualified personnel using appropriate PPE. Unqualified personnel can only approach when the conductor/equipment is in a safe to work condition.

7. All electrical shocks shall be immediately reported. Victims shall be evaluated at a Hanford occupational medical provider first aid station. Refer to TFC-ESHO-S_CMLI-C-02.

8. Signs (designed in accordance with 29 CFR 1910.145), barricades, or attendants must be used to isolate the work area and warn others of the exposed energized electrical circuits. Electrical safety warning signs are worded as follows:

   DANGER – ELECTRICAL HAZARDS -
   AUTHORIZED PERSONNEL ONLY

9. Conductive accessories such as rings, watches, bracelets, metal frame glasses, metal hats, etc., shall not be worn where they present an electrical contact hazard with exposed energized conductors or circuit parts unless they are rendered non-conductive by covering, wrapping, or other insulation.

### 3.11 Resetting Tripped Protective Devices

NOTE: Electrical protective devices may be, but are not limited to, fuses, circuit breakers, or equipment protective devices (e.g., motor thermal units, government-furnished property, etc.).

1. After a circuit is de-energized by a protective device, the circuit must not be manually re-energized until it has been determined that the equipment and circuit can be safely re-energized.

2. Electrical protective devices must be reset in the following sequence:

   a. The cause of the trip is investigated by an electrician with proper troubleshooting techniques and test equipment to determine what condition occurred and that the equipment and circuit may be safely reenergized.

b. The electrical protective device is reset or replaced if the device is a fuse.

NOTE: All 120 VAC, single-pole GFCI receptacles that trip during use may be reset one time without completing the above sequence.

**3.12 Performing Work Affecting Electrical Utilities**

1. Electrical Utilities must be consulted as soon as practical when planning work that may affect their equipment or facilities.

2. It is not permitted to come closer than ten feet, including the length of conductive equipment, to overhead high voltage lines with voltages 50 kilovolts phase to phase. If a vehicle is in transit with its structure lowered, the clearance may be reduced to four feet. Refer to NFPA 70E-2004, Article 130.2 (C) and Table 130.2 (C) for minimum approach distances.

3. Electrical Utilities must be notified at least 48 hours before performing any of the following operations or activities:

   - Moving any equipment taller than fourteen feet under overhead power lines

   - Operating equipment within twenty horizontal feet from overhead high-voltage (over 600 V) power lines.

   NOTE: The Hanford site electrical dispatcher is located at Building 251-W. The electrical dispatcher may be reached at 373-2321 (see "Electrical Dispatcher" in the Hanford Yellow Pages). The Richland city electrical dispatcher may be reached at 942-7403 or 942-4428 (after hours and weekends).

   NOTE: Requirements for operating cranes are described in DOE-RL-92-36, "Hanford Site Hoisting and Rigging Manual," 14.4.7, "Operating Cranes Near Energized Transmitters or Electrical Power Lines."

**3.13 Drilling into Walls, Floors, or Outdoor Slabs and Excavations Containing Buried Electrical Cables**

NOTE: TFC-ESHQ-S_IS-C-03 describes the procedure for excavating, trenching, and shoring.

1. A documented plan shall be prepared for work requiring drilling, cutting or penetrating deeper into walls, floors, or other surfaces that may contain hidden electrical obstructions.

2. All pertinent drawings and documentation must be reviewed. Before the job is started, the job site must be reviewed to determine if obstructions are in the drilling or excavating path.

3. Electrical circuits or conductors in the drilling or excavating path must be de-energized to the maximum extent feasible before the job is started.

4. If it has been determined by the facility Operations manager that de-energizing will introduce additional risk or is not feasible, justification for not deenergizing the

electrical circuits or conductors in the drilling or excavating path must be entered in the work plan/package and signed by the facility Operations manager prior to starting the job.

5. If the presence and location of electrical circuits or conductors cannot be accurately identified and de-energized, appropriate mitigating controls must be used. At a minimum, workers doing blind penetrations must use appropriate voltage-rated gloves with protective outer leather gloves and non-conductive safety glasses with side shields.

6. Suspected cable locations must be periodically verified with hand-held detection equipment or other acceptable means of locating utility installations.

### 3.14 Shift Routines, Inspections, and Surveillances

Managers and supervisors have the responsibility to ensure that shift routines, inspections, or surveillances that require working within the limited, restricted, or prohibited approach space (e.g., removing/opening electrical covers, working near exposed energized parts) are conducted by personnel qualified to work within those spaces.

## 4.0 DEFINITIONS

Authority Having Jurisdiction (AHJ). A person knowledgeable in the requirements of NFPA 70-2005, NFPA 70E-2004, 29 CFR 1910, Subpart S, and 29 CFR 1926, Subpart K, and assigned to interpret and enforce these electrical safety requirements on the Hanford Site.

Designated National Electrical Code inspector. A National Electrical Code (NEC) inspector designated by the CH2MHILL AHJ and who represents the NEC authority having jurisdiction.

Electrical Energized Work Permit. The standard method used to document a work plan used before performing energized electrical work as recommended by NFPA 70E-2004, Article 130.1 (A).

Exposed parts (as applied to live parts). Capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts not suitably guarded, isolated, or insulated.

Flash hazard analysis. A study investigating a worker's potential exposure to arc-flash energy, conducted for the purpose of injury prevention and the determination of safe work practices and the appropriate levels of PPE.

Flash protection boundary. An approach limit at a distance from exposed live parts within which a person could receive a second degree burn if an electrical arc flash were to occur.

Ground fault circuit interrupter. A device whose function is to interrupt the electric current to the load when a fault current to ground exceeds some pre-determined value that is less than that required to operate the overcurrent protective device of the supply circuit.

Limited approach boundary. An approach limit at a distance from an exposed live part within which a shock hazard exists.

Nationally Recognized Testing Laboratory. An organization which is recognized by OSHA in accordance with 29 CFR 1910.7 and which tests for safety, and lists, or labels, or accepts equipment or materials.

Prohibited approach boundary. An approach limit at a distance from an exposed live part within which work is considered the same as making contact with the live part.

Qualified person. One who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training on the hazards involved.

Restricted approach boundary. An approach limit at a distance from an exposed live part within which there is an increased risk of shock, due to electrical arc over combined with inadvertent movement, for personnel working in close proximity to the live part.

Troubleshooting and testing. Actions necessary to measure voltage and current and to verify the operability of equipment without repairing or replacing components.

Working near. Any activity inside the limited approach boundary of exposed energized electrical conductors or circuit parts that are not put into an electrically safe work condition.

Working on. Coming in contact with exposed energized electrical conductors or circuit parts with the hands, feet, or other body parts, with tools, probes, or with test equipment, regardless of the personal protective equipment a person is wearing.

## 5.0 SOURCES

### 5.1 Requirements

1. DOE O 440.1A, "Worker Protection Management for DOE Federal and Contractor Employees, Attachment 2, Contractor Requirements Document." (S/RID)

2. 10 CFR 851, "Worker Safety and Health Program."

3. 29 CFR 1910, Subpart I, "Personal Protective Equipment." (S/RID)
   a. 1910.137, "Electrical Protective Equipment."

4. 29 CFR 1910, Subpart S, "Electrical." (S/RID)

5. 29 CFR 1910.302, "Electric Utilization Systems."

6. 29 CFR 1910.303, "General Requirements (electrical)."

7. 29 CFR 1910.304, "Wiring Design and Protection."

8. 29 CFR 1910.305, "Wiring Methods, Components, and Equipment for General Use."

9. 29 CFR 1910.306, "Specific Purpose Equipment and Installations."

10. 29 CFR 1910.307, "Hazardous Locations."

11. 29 CFR 1910.308, "Special Systems."

12. 29 CFR 1910.331, "Scope."

13. 29 CFR 1910.332, "Training."

14. 29 CFR 1910.333, "Selection and Use of Work Practices."

15. 29 CFR 1910.334, "Use of Equipment."

16. 29 CFR 1910.335, "Safeguards for Personal Protection."

17. 29 CFR 1926, Subpart K, "Electrical." (S/RID)

18. NFPA 70-2005, "National Electrical Code (NEC)."

19. NFPA 70E-2004, "Standard for Electrical Safety Requirements for Employee Workplace."

**5.2 References**

1. DOE-HDBK-1092-98, DOE Handbook, "Electrical Safety."

2. TFC-ESHQ-S_CMLI-C-02, "Injury and Illness Events."

3. TFC-ESHQ-S_IS-C-03, "Excavating, Trenching, and Shoring."

4. TFC-ESHQ-S_SAF-C-02, "Job Hazard Analysis."

5. TFC-OPS-MAINT-C-02, "Pre-Job Briefing."

6. TFC-OPS-OPER-C-05, "Lockout/Tagout Program."

7. TFC-PRJ-P-C-02, "NEC Compliance Inspection."

## ATTACHMENT A – ELECTRICAL HAZARDS AND CONTROLS

| SAFETY HAZARDS | CONTROLS | ADDITIONAL TEXT |
|---|---|---|
| Minimum PPE requirements for work activities. | • Eye/Face Protection, Safety glasses with side-shields (ANSI Z87.1)<br>• Footwear (ANSI Z41), Protective Footwear<br>• Clothing, shirt with sleeves and long pants or coveralls. | See specific hazards for additional PPE requirements. |
| Operating breakers or starters (including push button starters) = or < 480 VAC, covers on. | • PPE (Level 0)– Long sleeved shirt and pants made of untreated natural fiber and safety glasses with side shields<br>Additional PPE:<br>• Leather work gloves, (which contain no metallic or conductive material). | |
| Medium risk > 50 VAC and < 600 VAC<br><br>Perform electrical activities such as installing electrical jumpers, terminating wires, pulling fuses, etc | • Assigned workers electrical safety training is current<br>• Lockout/Tagout<br>• If it is determined by management that lockout/tagout creates increased or additional hazards, then an EEWP shall be approved for this work activity. | 043870 "High Risk Electrical Safety," or Washington State General Electrician Journeyman Certificate. |
| Medium risk > 50 VAC and < 600 VAC<br>• Positioning breakers with cover panels off (240V or less)<br>• Opening hinged covers to exposed bare, energized parts. | • Assigned workers electrical safety training is current.<br>• Use non-conductive protective equipment.<br>• Electrical equipment used to verify that circuits are de-energized will be tested for proper operation before use.<br>• Establish flash protection boundary of 4 feet<br>• Refer to the additional text to the right and determine the appropriate FR PPE.<br>• PPE (Level 0)– Long sleeved shirt and pants made of untreated natural fiber and safety glasses with side shields<br>Additional PPE:<br>• Leather work gloves, (which contain no metallic or conductive material). | The operating locations listed below have completed fault current hazard evaluations and may follow the controls listed to the left.<br>- AN, AP, AW, AY, AZ, SY, A/AX, B, BX, BY, C, S, SX, T, TX, TY, U Tank Farms and 242-A Evaporator, 702-AZ<br><br>To determine the PPE requirements for operating locations other that those listed above contact the project safety specialist. If the project safety specialist cannot be contacted, perform the work at Level 2 FR PPE. |
| Medium risk > 50 VAC and < 600 VAC<br>• Work on energized electrical parts including voltage testing (240 VAC and below)<br>• Removal of circuit breakers or fused switches (240 VAC and below)<br>• CB or fused switch operation with cover panels off (>240V).<br>• Removal of bolted covers to exposed bare energized parts (240V or less). | • Assigned workers electrical safety training is current.<br>• Use non-conductive protective equipment.<br>• Electrical equipment used to verify that circuits are de-energized will be tested for proper operation before use.<br>• Establish a flash protection boundary of 4 feet<br>• To enter a restricted workspace a documented plan shall be developed and an EEWP may be required.<br>• PPE (Level 1) – FR Clothing, hardhat, safety glasses with side shields, and voltage rated gloves.<br><br>Note: If engineering fault current evaluation confirms <10k A short circuit available, the PPE requirement may be downgraded to Level 0 based on work scope and equipment condition as specified in Table 130.7(c)(9)(a) *Hazard Risk Category Classification*, in NFPA 70E. | The operating locations listed below have completed fault current hazard evaluations and may follow the controls listed to the left.<br>- AN, AP, AW, AY, AZ, SY, A/AX, B, BX, BY, C, S, SX, T, TX, TY, U Tank Farms and 242-A Evaporator, 702-AZ<br>- Following locations confirmed <10kA B, BX, SX, T, TY Farms and 702-AZ<br><br>To determine the PPE requirements for operating locations other that those listed above contact the project safety specialist. If the project safety specialist cannot be contacted, perform the work at Level 2 FR PPE. |

## ATTACHMENT A – ELECTRICAL HAZARDS AND CONTROLS (cont.)

| SAFETY HAZARDS | CONTROLS | ADDITIONAL TEXT |
|---|---|---|
| Medium risk > 50 VAC and < 600 VAC<br>• Work on energized parts including voltage testing (>240 VAC)<br>• Removal of circuit breakers or fused switches (> 240 VAC) | • Assigned workers electrical safety training is current.<br>• Use non-conductive protective equipment.<br>• Electrical equipment used to verify that circuits are de-energized will be tested for proper operation before use.<br>• Establish a flash protection boundary of 4 feet.<br>• To enter a restricted workspace a documented work plan shall be developed and an EEWP may be required.<br>• PPE (Level 2) – FR Clothing, hardhat, arc rated face shield, safety glasses with side shields, hearing protection (foam ear plugs), and voltage rated gloves.<br>• **PPE DURING RESPIRATOR USE (Level 2): FR Clothing, Double layer switching hood, hearing protection (foam ear plugs), and voltage rated gloves.<br><br>Note 1: If engineering fault current evaluation confirms <10kA short circuit available, the PPE requirement may be downgraded to Level 1 based on work scope and equipment condition as specified in Table 130.7(c)(9)(a) *Hazard Risk Category Classification*, in NFPA 70E.<br><br>Note 2: Arc flash calculations may also indicate distances which allow reduction of PPE to Level 1, Level 0, or less. | The operating locations listed below have completed fault current hazard evaluations and may follow the controls listed to the left.<br>- AN, AP, AW, AY, AZ, SY, A/AX, B, BX, BY, C, S, SX, T, TX, TY, U Tank Farms and 242-A Evaporator, 702-AZ<br>- Following locations confirmed <10kA B, BX, SX, T, TY Farms and 702-AZ<br><br>To determine the PPE requirements for operating locations other that those listed above contact the project safety specialist. If the project safety specialist cannot be contacted, perform the work at Level 2 FR PPE. |

**Note: PPE recommended by Hanford Work Place Electrical Safety Board.

## ATTACHMENT A – ELECTRICAL HAZARDS AND CONTROLS (cont.)

| SAFETY HAZARDS | CONTROLS | ADDITIONAL TEXT |
|---|---|---|
| Working within the restricted space for exposed, energized electrical parts. | • Assigned workers electrical safety training is current.<br>• To enter a restricted space, the qualified worker must have a documented plan.<br>• Establish a flash protection boundary of 4ft. All workers within the 4ft. area are required to wear the specified PPE<br>• PPE for electrical conductors 120V or less<br>  o Level 0, Long sleeved shirt and pants made of untreated natural fiber and safety glasses with side shields<br>• PPE for electrical conductors > 120V but < or = 240V<br>  o Level 1, FR Clothing, hardhat, safety glasses with side shields, and voltage rated gloves.<br>• PPE for electrical conductors >240V<br>  o Level 2, FR Clothing, hardhat arc rated face shield, safety glasses with side shields, hearing protection (foam ear plugs), and voltage rated gloves.<br><br>Note 1: If engineering fault current evaluation confirms <10kA short circuit available, the PPE requirement may be downgraded to Level 1 based on work scope and equipment condition as specified in Table 130.7(c)(9)(a) *Hazard Risk Category Classification,* in NFPA 70E.<br><br>Note 2: Arc flash calculations may also indicate distances which allow reduction of PPE to Level 1, Level 0, or less.<br>• **<u>PPE DURING RESPIRATOR USE >240V</u> (Level 2): FR Clothing, Double layer switching hood, hearing protection (foam ear plugs), and voltage rated gloves.<br>• Use non-conductive protective equipment<br>• Do not wear conductive accessories unless rendered non-conductive by covering, wrapping, insulating. | 043870 "High Risk Electrical Safety," or Washington State General Electrician Journeyman Certificate.<br><br>To enter a restricted space an EEWP is required unless the exposed components are de-energized or shielded.<br><br>For work performed in the following areas, PPE may be downgraded 1 level (e.g., if specified Level 1 ppe, then you may downgrade to Level 0 ppe): B, BX, SX, T, TY Farms and 702-AZ.<br><br>Note: Heat stress potential exists for extended work periods. Contact IH professional for additional work controls. |
| New installation/modification or temporary wiring | • Perform continuity checks if installation is 240 VAC or greater. | Examples: Rudy Cart and Mini Power centers |

**Note: PPE recommended by Hanford Work Place Electrical Safety Board.

ENERGYSOLUTIONS

*Internal Memo*

Date: September 25, 2007 MFE-07-4855

From: M. F. Edgerton

To: J. J. Dorian

cc: C. Marden
D. J. Moak
M. G. Gardner
K. D. Reynolds
M. C. Dorsey
S. Turner
Surveillance File

Subject: QUALITY ASSURANCE INTERNAL SURVEILLANCE REPORT TS-07-IS-002, OEM: 27-0 REV. 0, ASSEMBLY AND OPERATION OF THE SURVEY-GRADE GLOBAL POSITIONING SYSTEM

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Mr. Merle F. Edgerton conducted a surveillance on September 18, 2007 of Energy*Solutions* Operational Environmental Monitoring procedure QEM: 27-0 Rev. 0. The purpose of the surveillance was to verify implementation of the assembly and operation of the 5800 Series Real-Time Kinematic (RTK) Global Positioning System. Energy*Solutions* Technical Services adequately implemented work practices consistent with Attachment A, Assembling and Operating a Survey-Grade GPS Rover and Attachment B, Loading Coordinate Data in the TSCE Data Collector and Navigating to an In-Field Point.

The results of the subject surveillance are documented in the attached report.

There were no deficiencies identified during this surveillance.

The cooperation and responsiveness of your personnel during the conduct of the surveillance are noted and appreciated. If you have any questions regarding the contents of the report, please contact me at 375-9510.

**SURVEILLANCE REPORT**

| ENERGYSOLUTIONS | SURVEILLANCE REPORT NO. FS-07-IS-002 | PROGRAM PROJECT: UPR 200-86 | LOCATION: Hanford, 200 East Area , Richland, WA |
|---|---|---|---|
| | PERFORMED BY: Merle F. Edgerton | Merle F. Edgerton | DATE: September 18, 2007 |

BASIS AND OBJECTIVE: Energy*Solutions* Operational Environmental Monitoring procedure OEM: 27-0 Rev. 0, Assembly and Operation of the Survey-Grade Global Positioning System. To verify implementation of the assembly and operation of the 5800 Series Real-Time Kinematic (RTK) Global Positioning System procedure in the field.

| ITEM NO. | SURVEILLANCE CRITERIA (e.g., Customer Expectations/Requirements, Program/Procedure Requirements, etc.)DWO Controlling Organization | SURVEILLANCE METHODOLOGY Evidence From Observations, Interviews, and/or Review of Process | RESULTS | |
|---|---|---|---|---|
| | | | SAT | UNSAT |
| 1 | Verify that the GPS engineer/ technician has demonstrated training and qualification and that this activity is documented and maintained by the FSWO Training Coordinator per Section 3.1. | Verified through review of Energy*Solutions* Training Records that GPS Engineer/ Technician Mike C. Dorsey was trained to OEM: 27-0 Rev. 0, that he had received Installation and Orientation Training to operate the 5800 GPS System presented by GeoLine Positioning Systems, Inc. and attended a GPS Real Time Seminar presented by the Wash. State Sec. of the American Congress on Survey and Mapping. | SAT | |
| 2 | Verify that the GPS engineer/technician ensures that GPS and records disposition are performed in accordance with this procedure per Section 3.3 | Verified that the 5800 GPS System was maintained in the proper readiness state.<br><br>No Quality Records were produced during this surveillance. | SAT<br><br>N/A | |
| 3 | Verify that Global positioning system data is managed in accordance with QP; 17-1, Identification, Transmittal, Storage, and Maintenance of Quality Records per Section 5.0 | No Quality Records were produced during this surveillance. | N/A | |

**SURVEILLANCE REPORT**

| ITEM NO. | SURVEILLANCE CRITERIA (e.g., Customer Expectations/Requirements, Program/Procedure Requirements, etc.)DWO Controlling Organization | SURVEILLANCE METHODOLOGY Evidence From Observations, Interviews, and/or Review of Process | RESULTS | |
|---|---|---|---|---|
| 4 | Verify that the following per Attachment A Connections:<br>o Radio Antenna to Rover Radio (straight connector).<br>o Rover Radio to 5800 GPS Receiver (Trimble 9-pin connector.<br>o Camcorder Batteries to Backpack Battery Connectors (dual clip-type connectors).<br>o TSCe connects to 5800 Receiver via Bluetooth Wireless. | Witnessed that all Equipment Connections were made in the field at 241-C Tank Farm as stated in the procedure. | SAT | |
| 5 | Verity Starting a Job by the following per Attachment A Starting a Job:<br>o Turn on TSCe by pressing the green 1/0 button.<br>o Double-tap the Survey Controller, then tap the files icon then tap New Job.<br>o At the New Job, type in appropriate job name then tap enter.<br>o At the Coordinate System box, Washington South 4642 should be present, tap enter, then accept. Tap Files and select Copy Between jobs. At Job to Copy on to, tap Accept, tap Okay on the Warning window then tap Okay on the No control points were copied.<br>o An audible signal will occur and the controller will switch back to the main screen. | Witnessed that Starting a Job in the field at 241-C Tank Farm was performed as stated in the procedure | SAT | |

**SURVEILLANCE REPORT**

| ITEM NO. | SURVEILLANCE CRITERIA (e.g., Customer Expectations/Requirements, Program/Procedure Requirements, etc.)DWO Controlling Organization | SURVEILLANCE METHODOLOGY Evidence From Observations, Interviews, and/or Review of Process | RESULTS | |
|---|---|---|---|---|
| 6 | Verify Starting the Survey by the following per Attachment A <u>Starting the Survey:</u><br>o In the main menu tap Survey and select icon RTK, tap Start Survey. Initialization is accomplished when RTK Fixed is displayed and an audible signal is sounded.<br>o Tap the ? next to the lower of the two antenna icons to enter antenna height. Enter 2.00m, tap enter, then tap accept. The main menu will appear. | Witnessed that Starting the Survey in the field at 241-C Tank Farm was performed as stated in the procedure. | SAT | |
| 7 | Verify to Collect a Point by the following per Attachment A <u>To Collect a Point.</u><br>o From Main menu tap survey icon, from the drop down menu, tap Measure Points. Enter appropriate Point Name then tap enter.<br>o Position the point of the range pole on the ground surface, Observe the spot level and maintain bubble at its center. | Witnessed Collecting a Point using 241-C Tank Farm Site 11/ Well ID C5963,<br>Verified Easting as 57502.89 and Northing as 136454.279 with an Elevation of 205.701 Meters.<br>Verified bubble at center. | SAT | |
| 8 | Verify Navigating to a Point Using the Graphical Display by the following per Attachment B <u>Navigating to a Point using the Graphical Display.</u><br>o From the TSCe's main menu tap the Files icon. Tap Open Job. Select from the appropriate file. The selected job will open.<br>o Tap Map located on the right side of the screen. The map graphical display depicts the point locations as dots under which are the point names. A crosshatch represents the location of the 5800 GPS receiver Tap on a dot to select it as a point to which to navigate. Tap OK then tap Stake Out. Mark the point with a survey stake, paint etc. | Witnessed Navigating to a Point using the following 241-C Tank Farm Sites / Well ID. per C TANK FARM GPR FIGURE 1 dated August 2007<br>Site 1, Well ID 5943, Site 2, Well ID 5945, Site 3, Well ID 5947<br>Site 4, Well ID 5949, Site 5, Well ID 5951, Site 6, Well ID 5953<br>Site 7, Well ID 5955, Site 8, Well ID 5957, Site 9, Well ID 5959<br>Site 10, Well ID 5961, Site 11, Well ID 5963.<br>Areas were marked with Paint. | SAT | |

## H4.0 SAFETY EVALUATION

ENERGYSOLUTIONS
Federal Services

January 10, 2008 RWZ-08-4957

Evaluation of spindle fracture on the Hydraulic Hammer Unit (HHU)

Dear Mr. Reynolds:

As a follow up to the HHU spindle fracturing on the January 8, 2008, Mike Walkup and I performed an evaluation of the potential cause and effects as well as potential effects. The likely cause of the failure is the crossover sub assembly came loose during operation of the HHU which resulted in the spindle fracturing near the tip and damage to the threading. To return the HHU to operation the spindle and the crossover (this was tagged out of service at the time of the incident) will need to be replaced.

The crossover sub assembly coming loose and breaking the spindle is an equipment damage hazard and does not create a significant hazard to employees. The likely result of this failure is for damage to occur around the interface between the crossover and the spindle such as happened in this event.

If you have any questions, please call me on (509) 375-9585 or (509) 308-6404.

Sincerely,

Robert W. Zane
Senior ESH Professional

Mikel W. Walkup
Site Technical Representative

Energy*Solutions* – Project File

2345 Stevens Dr., Suite 240 • Richland, Washington 99354
509.371.8006 • Fax 509.375.9500 • www.energysolutions.com

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 11/09/07<br>Time: 0900<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-020 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Coffee cup was found inside of the work area and when questioned some of the crew members thought that it was okay to have drink beverages in the work area because it was not a radiologicaly controlled area. Had a discussion with the whole crew, informing them that consumption of food, beverages, etc. inside of the work area would not be allowed even when it is not radiologicaly controlled.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 11/27/07<br>Time: 1330<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-022 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

The extension cords, supplying power to air monitors and logging equipment, are run across the ground (not inside of a protective cover) in front of the gate used for bring vehicles/equipment into the work area. Talked to the site supervisor about them and was informed that they were being rolled up when vehicles/equipment were brought into the work area as a temporary fix until approved covers were acquired.

The acquisition of the protective covers should be expedited to avoid the predictable error of personnel forgetting to roll up the cords.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 12/7/07<br>Time: 1200<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-023 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

There was an unlabeled secondary container of sand at the jobsite. Material was transferred out of the secondary container during inspection and crew was briefed on labeling requirements during weekly safety meeting on 12/11/07.

Employee was in the work zone wearing non-safety glasses. Employee switched to safety glasses after being notified.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 12/13/07<br>Time: 1330<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-024 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Job site looked good.

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 12/21/07<br>Time: 1100<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-07-025 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Performed inspection with focus on looking for items that could be affected by weather during the Christmas break. When I arrived at the jobsite personnel were already securing items that could be moved by wind and putting other supplies away in the storage trailer. Good job!

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 01/03/08<br>Time: 1400<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-001 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| 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.**

Vehicle barricade near Southwest entrance had blown down. Fixed during inspection.

ENERGYSOLUTIONS

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| Date: 01/16/08<br>Time: 1100<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-002 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

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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. One of the four extension cords, run across the equipment/vehicle entrance was left on the ground and driven across by a maintenance vehicle. This cord was missed because of the snow covering it. *The cord was inspected for damage during the performance of this surveillance and none was detected. To prevent reoccurrence, cord protectors were acquired and placed across the entrance.*
2. Extension cords were "daisy-chained". *Corrected during inspection.*
3. Ice patches were creating slip hazards throughout the work and support areas. *Ice melt was spread around to create safe walk paths.*

ENERGYSOLUTIONS

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| Date: 01/23/08<br>Time: 0900<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-003 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

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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.**

The jobsite looked good. I also observed the following good work practices.

- Personnel were wearing seat belts while operating the backhoe, including moves of a few feet.
- Personnel readjusted the plastic to remove slip hazards before starting work.
- Personnel asked for help to move heavy objects.
- All personnel were wearing required PPE.

ENERGYSOLUTIONS

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|---|---|
| Date: 02/01/08<br>Time: 1300<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-004 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Monthly safety meetings are conducted 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 | | |

Page 1 of 2

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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.**

The fire extinguisher mounted on the generator is out of date on monthly inspection.

ENERGYSOLUTIONS

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|---|---|
| Date: 02/07/08<br>Time: 1100<br>Location: UPR-86 | Inspectors: Rob Zane |
| Activity: Cleaning and Securing Job Site | Report #: CHG-RWZ-08-005 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | | | X |
| Monthly safety meetings are conducted 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 | | |
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| **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 | | |

Page 1 of 2

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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.** | | | |