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# Completion Report for the 241-CR-151 Vault (UPR-200-E-81) Direct Push Characterization and Sampling

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Abstract: This report contains information for field activites and geophysical logging results.

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RPP-38927
Revision 0

# Completion Report for the 241-CR-151 Vault (UPR-200-E-81) Direct Push Characterization and Sampling

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

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC27-99RL14047

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## 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* |
| bgs | below ground surface |

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# COMPLETION REPORT FOR THE 241-CR-151 VAULT (UPR-200-E-81) DIRECT PUSH CHARACTERIZATION 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 the 241-CR-151 Diversion Box (UPR-200-E-81) site 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 under and adjacent to an unplanned release from a failed transfer line adjacent to the 241-CR-151 Diversion Box. The data will be used to outline the vertical and horizontal extent of contamination.

FSWO-DOW-025, *Description of Work: 241-CR-151 Vault Direct Push Characterization (UPR 200-E-81 Site)* (see Appendix B) provides a detailed description of the scope of work performed. Energy*Solutions* was responsible for the provision of equipment and personnel to conduct the direct push activities, soil sample collection, and safety oversight. The following were included in the overall Energy*Solutions* work scope: Providing for global positioning surveys, providing subcontract geophysical logging services, providing technical support and preparing final reports. The following appendices contain copies of documentation generated during the performance of the above work scope.

Appendix A, Explanation of Down Time
Appendix B, FSWO-DOW-025, *Description of Work: 241-CR-151 Vault Direct Push Characterization (UPR 200-E-81 Site)*, Rev. 0
Appendix C, Global Positioning System Coordinates and Mapping
Appendix D, Drilling and Sampling Daily Work Records
Appendix E, RPP-38406, *Small Diameter Geophysical Logging for UPR-200-E-81*, Rev. 0
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 April 2008, drilling equipment and support items were staged near the 241-C Tank Farm, at the UPR-200-E-81 investigative location. FSWO-DOW-025, Rev. 0 (Appendix B) was prepared and submitted prior to the staging of this equipment. The description of work provides detailed work instructions and other information for conducting characterization efforts at the

UPR 200-E-81 site. A hydraulic hammer unit was to be used for placing eight proposed exploration boreholes. Six had a target depth of 30.48 meters (100 feet) below ground surface (bgs) or refusal, while two were to be pushed in excess of 60.96 meters (200 feet) for geophysical logging and sample collection.

Eight exploratory boreholes with eight offset sampling boreholes were planned for this scope of work. The exploratory locations were selected based on ground penetrating radar data and as-built infrastructure drawings. CH2M HILL technical representatives chose to push five exploratory boreholes, each deeper than originally planned. The initial investigation included geophysical logging from total depth to surface, utilizing a sodium–iodide scintillation gross gamma detector and a neutron-neutron moisture probe. Data from this initial investigation was reviewed by CH2M HILL personnel to determine a sampling strategy. Based on the geophysical logging data obtained, CH2M HILL chose to push only one sample borehole (C6394), adjacent to borehole C6393. Eleven samples were obtained from this one sample borehole. No other sample boreholes were required. Sampling information is provided in Table 1 and Appendix F.

Two of the five exploratory boreholes (C6397 and C6399) showed only background gamma activity levels. Boreholes C6391, C6393 and C6395 displayed gamma activity above background levels, with C6393 having the highest concentrations. Maximum gamma activity encountered in this borehole was 45,000 pCi/g of Cs-137. Gyroscope surveys were also conducted on boreholes C6393 and C6399. Both were in excess of 71.63 meters (235.0 feet) deep. The bottom of borehole C6393 deviated 2.74 meters (9.0 feet) southeast from vertical, while the bottom of borehole C6399 deviated 1.37 meters (4.5 feet) southeast from vertical. Detailed results from these logging efforts are provided in Appendix E.

The hydraulic hammer unit and associated personnel initially began mobilization and site set up April 1, 2008. They commenced pushing the first borehole for this task April 14, 2008. The task was completed June 14, 2008. Not including time required for mobilization and demobilization, there were 56 field days that the hydraulic hammer unit and crew were dedicated to the UPR-200-E-81 activities. During this work scope, there were 139.75 hours of down time associated with this task. A summary of down time can be found in Appendix A. For exact dates of down time, refer to the Drilling and Sampling (Percussion) Daily Work Records located in Appendix D.

## 3.0 DIRECT PUSHING, SAMPLING AND LOGGING DETAILS

### 3.1 DIRECT PUSHING

Per FSWO-DOW-025, Rev. 0, exploration hole placement and sampling was accomplished with the use of a hydraulic hammer system mounted on a tractor-type carrier. For investigative purposes, a 6.35 centimeter (2.5-inch) outside diameter (OD) x 4.45 centimeter (1.75-inch) inside diameter (ID) casing was driven at predetermined locations to specified depths, or refusal. Once a push location was logged, the data was reviewed by CH2M HILL personnel and sample

locations and depths were selected. At designated boreholes, a second location within 0.6 meter (2 feet) of the exploratory hole was then pushed for sample retrieval.

## 3.2 SOIL SAMPLING

Soil sampling with the rotary hammer unit was accomplished with the dual-wall sampling system. With the dual-wall system, once sample depth has been reached, the inner rod with the dummy drive tip is removed, and the drive tip is replaced with a sampler. The sampler consists of a 6.67 centimeter (2.625-inch) 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). There were a total of eleven samples obtained from borehole C6394. Nine of these samples produced enough material for the required analysis, two did not. Samples B1VJ54 and B1VJ55 had only 40% recovery. Table 1 shows intervals, sample numbers and sample recovery percentage.

Table 1. Sample Intervals.

| Borehole Number | Depth In Feet | Sample Number | Percent Recovery |
|---|---|---|---|
| C6394 | 9.0-11.0 | B1VJ54 | 40% |
| C6394 | 15.0-17.0 | B1VJ55 | 40% |
| C6394 | 26.0-28.0 | B1VJ56 | 100% |
| C6394 | 36.0-38.0 | B1VJ57 | 100% |
| C6394 | 42.0-44.0 | B1VJ58 | 95% |
| C6394 | 59.0-61.0 | B1VJ59 | 100% |
| C6394 | 75.0-77.0 | B1VJ60 | 100% |
| C6394 | 95.0-97.0 | B1VJ61 | 100% |
| C6394 | 133.0-135.0 | B1VJ62 | 100% |
| C6394 | 168.0-170.0 | B1VJ63 | 100% |
| C6394 | 170.0-172.0 | B1VJ64 | 100% |
| NA | NA | B1W154 | QC Sample |
| NA | NA | B1W155 | QC Sample |

Samples were obtained and analyzed in accordance with CH2M HILL Sample Authorization Forms V08-003 and V08-004. 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

With the use of a Trimble 5800 Global Positioning Satellite Survey system and per FSWO-DOW-025, Rev. 0, the original locations of the exploratory boreholes were identified using paint and stakes. Once the task was completed and the boreholes decommissioned, each successful exploratory and sample borehole was later recorded for accuracy. These recorded coordinates were placed on a map showing their locations in direct relation to the underground structures in the vicinity. The coordinates, elevation and a map showing completed push locations/boreholes are provided in Appendix C.

### 3.4 GEOPHYSICAL LOGGING

Pacific Northwest Geophysics and Three Rivers Scientific conducted the geophysical logging data collection and analysis services on the five exploration 6.35 centimeter (2.5-inch) probe boreholes. For the geophysical logging, a portable small diameter logging system was used to collect 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. For investigative purposes, a neutron moisture probe was used for moisture detection. Results showed that all five boreholes have moisture peaks at approximately 41 meters (135 feet) bgs. This moisture peak was the target zone for sample B1VJ62, which was obtained from 40.54 to 41.15 meters (133.0 to 135.0 feet) bgs. RPP-38406 (Appendix E) details calibrations, survey results and data interpretation, as well as providing copies of the collected and processed log data.

## 4.0 BOREHOLE DECOMMISSIONING

Decommissioning of all the boreholes was conducted in accordance with the *Washington Administrative Code* (WAC) 173-160 requirements. Washington State Department of Ecology documentation is located in Appendix G. While decommissioning the boreholes not requiring probe placement, the tubing was back pulled while bentonite crumbles were simultaneously added to the tubing until it reached the surface. Because of excessive contamination levels in borehole C6393, the majority of the tubing was left in the ground.

Two of the five 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 and filled with bentonite to near the desired probe placement depth. Silica sand was then added to the depth at which the resistivity probe was to be placed. The resistivity probe was placed and additional 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 sand to near the next probe depth. The process was repeated for multiple probe installations. Once the probes were installed, bentonite crumbles were added from above the silica sand to surface while back pulling the remaining tubing. A protective steel casing was cemented in place approximately 30.48 centimeters (12 inches) deep at the surface to protect the protruding probe wiring.

Table 2 shows both logged and sample boreholes, coordinates, pushed depth and resistivity probe placement depth.

Table 2. Borehole Information.

| Borehole# | Northing | Easting | Elevation | Hole Depth | Probe Depth |
|---|---|---|---|---|---|
| C6391 | 136474.3 | 575115.2 | 203.510 | 152.0 | NA |
| C6393 | 136465.8 | 575119.7 | 203.722 | 242.0 | NA |
| C6394 | 136464.8 | 575120.0 | 203.672 | 172.0 | Sample Borehole |
| C6395 | 136469.7 | 575110.6 | 203.651 | 152.0 | 50.0 ft. |
| C6395 | 136469.7 | 575110.6 | 203.651 | 152.0 | 146.0 ft. |
| C6397 | 136482.4 | 575125.4 | 203.072 | 152.0 | NA |
| C6399 | 136478.0 | 575130.1 | 203.028 | 242.0 | 50.0 ft. |
| C6399 | 136478.0 | 575130.1 | 203.028 | 242.0 | 215.0 ft. |

## 5.0 ENVIRONMENTAL, SAFETY AND HEALTH

During the UPR-200-E-81 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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## APPENDIX A

## EXPLANATION OF DOWN TIME

**CH2M HILL Company Function =7.5 hours.** CH2M HILL safety meetings and luncheon.

**Safety Expo = 9.0 hours.** CH2M HILL monthly safety meeting. No health physics technician or nuclear chemical operation support.

**No Fluor Operator Support = 8.0 hours.** Fluor samplers not available to support sampling.

**Stop Work Issued = 2 hours.** Crane incident in another tank farm.

**Excessive Heat = 8.5 hours.** CH2M HILL procedures specify a work/rest regime that depends on the wet bulb globe thermometer temperature.

**Excessive Wind = 74 hours.** CH2M HILL procedures call for tank farm work stoppage when winds are in excess of 20 miles per hour.

**Rain Delay = 5.25 hours.** CH2M HILL radiological work permit requires dry conditions for radiological surveying during extraction activities.

**Hydraulic Hammer Unit Maintenance = 12.0 hours.** Required maintenance.

**Air Monitor Issues = 2 hours.** CH2M HILL equipment required electrical cord inspections.

**Emergency Preparedness Drill = 2.5 hours.**

**Work Package Issues = 9.0 hours.** CH2M HILL required review to ensure compliance.

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# APPENDIX B

# FSWO-DOW-025, DESCRIPTION OF WORK

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FSWO-DOW-025
Revision 0

# DESCRIPTION OF WORK
# 241-CR-151 VAULT DIRECT PUSH CHARACTERIZATION
# (UPR 200-E-81 SITE)

February 2008

Prepared for CH2M HILL Hanford Group, Inc.

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

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FIGURE

Figure 1. 241-CR-151 Diversion Box Probe Hole Locations ..... 3

TABLE

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## 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-025, Rev. 0

# DESCRIPTION OF WORK: 241-CR-151 VAULT DIRECT PUSH CHARACTERIZATION (UPR 200-E-81 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 subsurface vadose zone data.

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

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 improve the level of understanding of contaminants in the subsurface. This work is based on the needs and requirements identified in DOE/RL-98-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas, Rev. 1, dated June 2000.* The specific work scope is identified in RPP-PLAN-35341, *Work Plan for Near-Surface Vadose Zone Characterization Utilizing the Hydraulic Hammer/Direct Push Technology For 35 Direct Pushes in FY08, Rev. 1.*

HNF-EP-0182, *Waste Tank Summary Report for Month Ending December 31, 2007*, describes a waste loss event associated with an unplanned release (UPR 200-E-81) from the CR Vaults near the southwest corner of the C Tank Farm. Fluids released were associated with Plutonium-Uranium Extraction (Plant) (PUREX) cladding waste. It is estimated that approximately 136,300 L (36,000 gal) of fluid that contained uranium fuel dissolved during the caustic dissolution of the aluminum fuel rods at the PUREX Plant were lost to the soil from this event.

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 165806, *Drilling and Related Characterization Services,* Rev. 0 was prepared to conduct 241-CR Vault UPR 200-E-81 characterization activities pursuant to the Terms and Conditions of Letter Subcontract Number 31672-0 (7A200-JOK-07-017). 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 inside the 241-C Tank Farm at the UPR 200-E-81 site. The scope of work involves providing equipment and personnel to conduct direct push activities; supporting soil sample collection; supporting the installation of subsurface monitoring equipment; providing safety oversight and geophysical logging services; providing global positioning survey support; attending meeting and planning sessions; and providing a written report documenting field activities and data collection at the conclusion of activities.

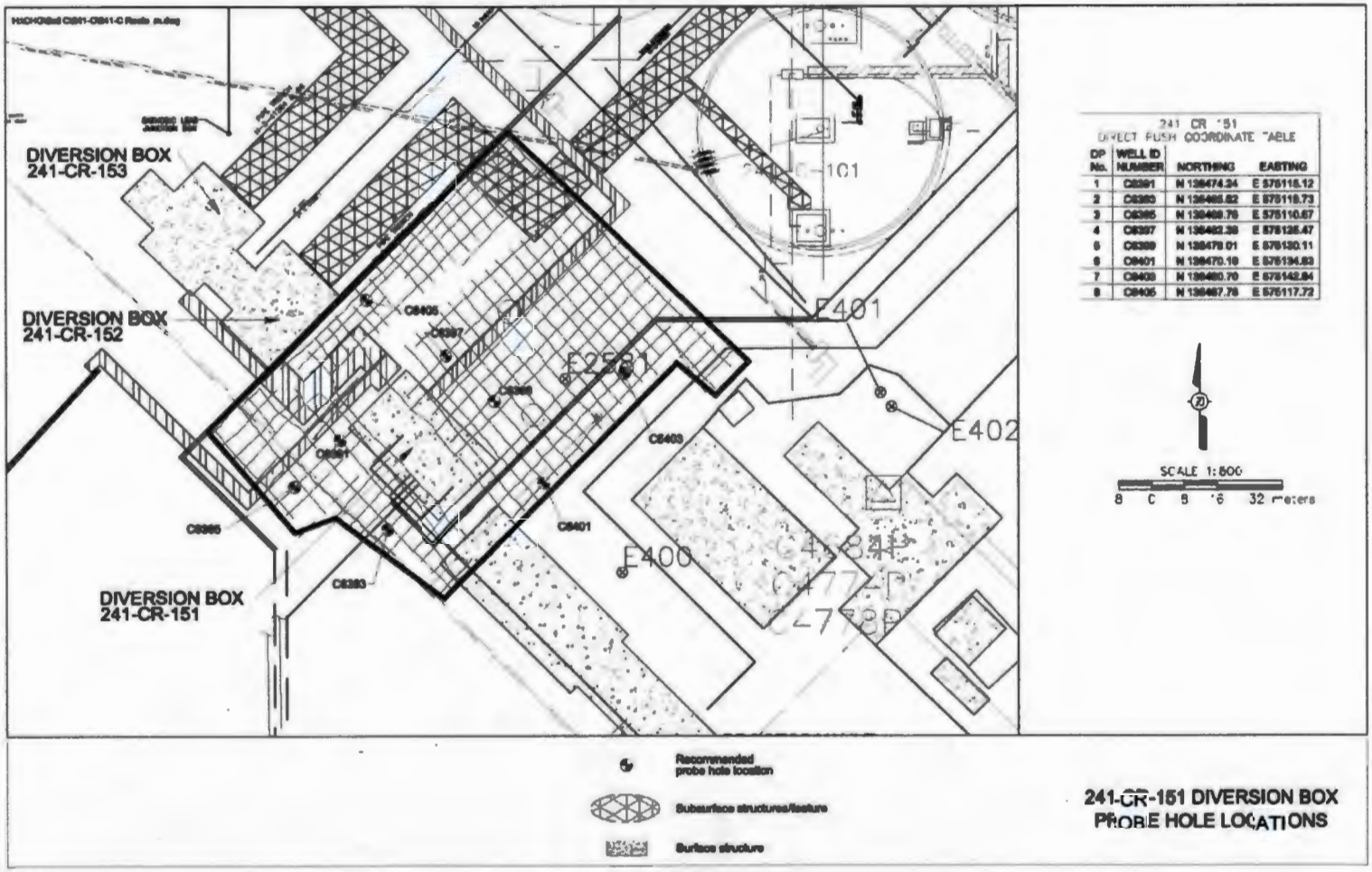
## 1.2 TANK FARM BACKGROUND

The Hanford Site has 149 underground SSTs that store hazardous radioactive waste. These tanks are grouped into 12 tank farms that are further grouped into eight WMAs and are regulated under RCRA. Many of these tanks have leaked, and there have been leaks in the associated infrastructure (e.g., pipelines, diversion boxes). Some of the leaked waste has entered groundwater. This DOW provides direction for field operations relative to characterization activities at UPR 200-E-81.

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 136,260 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. This site presents a major portion of the risk associated with closure of WMA C.

Figure 1 below is a general location map of the UPR 200-E-81 area adjacent to the 241-CR-151 Vault with specific push locations identified.

Figure 1. 241-CR-151 Diversion Box Probe Hole Locations.



### 1.1.2 Physical Setting

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

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

## 2.0 METHODOLOGY

The method selected to outline the vertical and horizontal extent of contamination is a hydraulic hammer-driven probe system mounted on a tractor-type carrier. For this application, points (locations) for investigation (exploration) are selected through an iterative process as outlined in Section 3.0. Sample depths are to be determined by moisture and gamma logs. Deepest targeted sample depths will be determined by review of the geophysical data and the total depth achieved by the initial exploratory push. Initially eight investigative sites have been outlined for exploratory push investigation and geophysical log data collection. Six of the exploratory push locations will be advanced to 30.48 m (100 ft) below ground surface (BGS) or refusal, and the remaining two will be advanced to refusal. It is anticipated that total depth for these two exploration push locations will be 60.96 m (200 ft) BGS or deeper. Current planning includes 16 soil samples at various depths, selected from the eight exploration push locations based on geophysical log data.

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 selected sampling push locations.

### 2.1 MULTIPLE SAMPLE PUSH

There are eight sites in the UPR 200-E-81 (CR-151 Vault) area that are planned as potential multiple sampling locations. Collection of as many as 16 soil samples is planned at the CR-151 Vault site. 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 from the drive shoe and tip.

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

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

Upon completion of the final sample extraction, or upon meeting refusal, the dummy tip or sampler is removed and the borehole is decommissioned per WAC 173-160, "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-81 area adjacent to the 241-CR-151 Vault. Specific push locations are also identified in Figure 1. These locations were selected through an iterative process using ground-penetrating radar scan data and as-built infrastructure drawing reviews. The two data sets were compared and sites for placement of push locations were selected based on the highest level of confidence achievable on review of specific locations

and ground scan trace comparisons. The final location coordinates of the selected sites (determined from the ground-penetrating radar and as-built review) were plotted with computer-aided drafting (see Figure 1 above). Push locations will be documented on Well Information Reports/Field Activity Reports. In addition to the coordinate position of the probe location, the push depth, geophysical log data and other pertinent information derived during the activity (e.g., depth of contamination as identified from geophysical log interpretation, degree of contamination observed on push rods during extraction) are included in the documentation.

### 3.2 PUSH LOCATION TABLES AND NUMBERING

All primary (exploratory) and sampling push location activities will be tracked and documented on Field Activity Reports by referencing the Well identification (Well ID) number provided in Table 1. If the collection of a sample is attempted, a unique Well ID number will be used to track the push location on the Field Activity Report, and the sample will be identified with that Well ID number on the sample label and the shipping documentation. Each sample depth/location is identified as an offset from the exploratory push that identified the depth of interest (e.g., target sampling depth). That is, if, during the exploratory push, a zone of interest is identified at a listed coordinate position, the sampling push unique number is determined by the original identification number plus one (e.g., if a zone of interest is identified during pushing at location 1 [in Table 1, Well ID C 6391] the Well ID of the subsequent sampling push is C 6392). 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. 241-CR-151 Direct Push Coordinates.

| 241-CR-151 DIRECT PUSH COORDINATE TABLE | | | |
|---|---|---|---|
| DP No. | WELL ID NUMBER | NORTHING | EASTING |
| 1 | C6391 | N 136474.24 | E 575115.12 |
| 2 | C6393 | N 136465.62 | E 575119.73 |
| 3 | C6395 | N 136469.76 | E 575110.67 |
| 4 | C6397 | N 136482.38 | E 575125.47 |
| 5 | C6399 | N 136478.01 | E 575130.11 |
| 6 | C6401 | N 136470.10 | E 575134.83 |
| 7 | C6403 | N 136480.70 | E 575142.64 |
| 8 | C6405 | N 136487.78 | E 575117.72 |

# 4.0 WORK TASKS

## 4.1 SITE SETUP

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

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

## 4.2 PUSH POINT CONTROL

During advancement of the push hole, casing (push rods) will be driven into the subsurface by use of the hydraulic hammer impact system. The push locations have been positioned to avoid impacting known/mapped structures. The mapped points will be investigated with all due caution and careful observation of the push advance rates, and resistance will be observed to preclude damage to any tank farm infrastructures should the as-built drawings be in error. If rod advance indicates that obstructions are present, push advance will stop, the direct push equipment and work area will be placed in safe condition and the Vadose Project Engineer (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.
5. Slim-hole gyroscope logging in a minimum of one of the planned eight exploratory probe locations.

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

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

### 5.3 RINSEATE SAMPLES

Field equipment rinseate blanks may be required for analysis purposes. This determination and collection of these rinseate samples is the responsibility of CH2M HILL and their designated subcontract personnel.

### 5.4 EXPLORATION AND SAMPLING PUSH HOLE DECOMMISSIONING

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

## 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-81 investigation/characterization. These issues are addressed and 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 outlines the specific activity hazards and the mitigation methodologies. The documentation governing the operation of the direct push rig, sampling, and decommissioning activities (AHA-08-001, *UPR-200-E-81 (CR-151 Vault) Characterization Hydraulic Hammer Unit Operations,* Rev. 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 Letter Subcontract Number 31672-0 (7A200-JOK-07-017). While executing 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

7A200-JOK-07-017, 2007, *Letter Subcontract Number 31672-0 for Work Described as "Direct Push Drilling and Related Characterization Services,"* (letter to Sheri K. Dawson, Energy*Solutions* Federal Services, Inc., March 21), CH2M HILL Hanford Group, Inc., Richland, Washington.

AHA-08-001, Rev 0, *UPR-200-E-81 Characterization,* Rev. 0, Energy*Solutions* Technical Services, Richland, Washington.

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

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

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

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

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

HNF-EP-0182, 2008, *Waste Tank Summary Report for Month Ending December 31, 2007*, Rev. 237, CH2M HILL Hanford Group, Inc., Richland, Washington.

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

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

RPP-PLAN-35341, 2007, *Work Plan for Near-Surface Vadose Zone Characterization Utilizing the Hydraulic Hammer/Direct Push Technology for 35 Direct Pushes in FY08*, CH2M HILL Hanford Group, Richland, Washington.

Statement of Work Requisition 165806, 2008, *Drilling and Characterization Services*, Subcontract 31672-0, Task 3-Description, Rev. 0, 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 MAP

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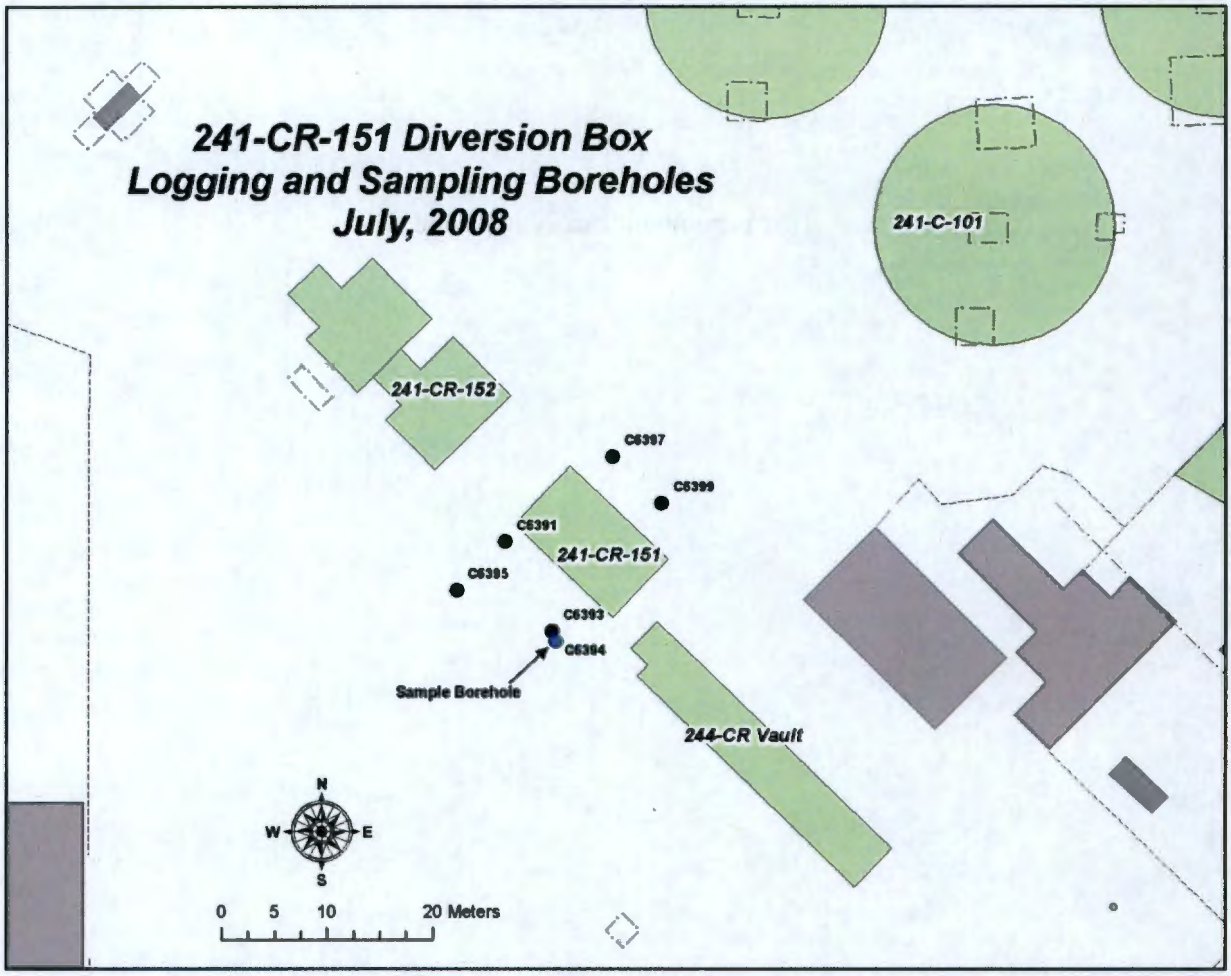


| Borehole# | Northing | Easting | Elevation |
|---|---|---|---|
| C6391 | 136474.3 | 575115.2 | 203.510 |
| C6393 | 136465.8 | 575119.7 | 203.722 |
| C6394 | 136464.8 | 575120.0 | 203.672 |
| C6395 | 136469.7 | 575110.6 | 203.651 |
| C6397 | 136482.4 | 575125.4 | 203.072 |
| C6399 | 136478.0 | 575130.1 | 203.028 |

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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:** 1 | **DATE:** 03/31/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE (HHU#1)<br>AHA: AHA-08-001, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: PRE-JOB, CONDUCTING HHU CLEANING, SURVEY EXPLORATORY BOREHOLES AND CLEANING TUBING THREADS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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 Hrs.

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

**WEATHER CONDITIONS** (373-2716)
Temperature 54 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 | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | No Set Up Work Package. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Job Performance. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 09:35 | A Pre-job Safety Meeting was conducted by Mr. Scott Snook. |
| 09:35 | 10:35 | After further evaluation it was decided that the HHU/backhoe will need to be pressure washed. Presently there is not a facility/area set-up for pressure washing. Central machinery was contacted and the HHU unit hauled to their facility for cleaning, painting and repair of minor items. This work is being conducted to meet the alpha survey requirements. |
| 10:35 | 12:00 | Mr. Dorsey was on location and surveyed in the exploratory boreholes (8). |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Personnel conduct tubing thread cleaning. |
| 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: 9-2-08<br>SIGNATURE: [signature] |

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: 2** | **DATE:** 04/01/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE (HHU#1)<br>AHA: AHA-08-001, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCTING DRIVE TUBING THREAD CLEANING AND REPAIR SAW HORSE. ELECTRICIANS MOBILIZE RUDY CART INTO C TANK FARM AND SET-UP.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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 Hrs.

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

**WEATHER CONDITIONS** (373-2716)
Temperature 59 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 | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:35 | Set Up Work Package picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to horse play and attentiveness. An equipment and site inspection was conducted. No deficiencies noted |
| 08:35 | 10:15 | A drive tubing support (saw horse) was repaired. |
| ——— | ——— | The electricians mobilize the Rudy cart into the C Tank Farm and set-up. Drive a grounding rod supporting the Rudy cart. |
| 10:15 | 12:00 | Clean 2 5/8 inch tubing threads. Conduct inventory of drive rods. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Clean 2 5/8 inch tubing threads. Complete inventory of drive rods. |
| 15:00 | 15:30 | Secure site and Equipment. |

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

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 9-2-08
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: 3** | **DATE:** 04/02/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE (HHU#1)<br>AHA: AHA-08-001, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: MOBILIZE DRIVE TUBING AND AIR MONITORS INTO C TANK FARM. CONDUCTING DRIVE TUBING THREAD CLEANING AND REPAIR SAW HORSE.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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 Hrs.

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

**WEATHER CONDITIONS** (373-2716)
Temperature 57 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 | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:35 | Set Up Work Package picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Cross Walks. An equipment and site inspection was conducted. No deficiencies noted |
| 08:35 | 10:30 | Mobilize drive tubing and air monitors, with cabinets, into C Tank Farm. The NCO's support moving equipment with a forklift. |
| 10:30 | 12:00 | Haul away and dispose of old air cabinets supporting the air monitors. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Initiate cleaning of 2 5/8 inch tubing threads. Clean up work area. |
| 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: 9-2-08
SIGNATURE: [signature]

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: 4** | **DATE:** 04/03/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE (HHU#1)<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: INVENTORY ITEMS IN THE GREEN HUT AND ENERGY NORTHWEST, CLEANING TUBING THREADS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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 Hrs.

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

**WEATHER CONDITIONS** (373-2716)
Temperature 66 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 | *TIME* TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The set-up Work Package is picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Extension cord size chart. An equipment and site inspection was conducted. No deficiencies noted |
| ——— | ——— | ***A weekly safety meeting was conducted by Mr. Repko. The safety topic was Tire Safety. Proper tire care and safety is simple and easy. The rubber manufacturers association (RMA) recommends getting in the habit of taking five minutes every month to check your tires, including the spare. Underinflation is a tire's #1 enemy. It results in unnecessary tire stress, irregular wear, loss of control and accidents. A tire can loose up to half of its air pressure and not appear to be flat. Is your vehicle pulling to one side, or shaking? A bad jolt from hitting a curb or pothole can throw your front end out of alignment and damage your tires. Have a tire dealer check the alignment periodically to ensure that your car is properly aligned. Rotation promotes uniform wear. Rotate your vehicle's tires regularly. The guideline is approximately every 5,000 miles. The tread will need to be measured and inspected. Advanced or unusual wear can reduce the ability of tread to grip the road in adverse conditions. Visually check your tires for uneven wear. Also, check for signs of damage.*** |
| 08:30 | 12:00 | Inventory items in the Green hut and Energy NW was conducted. |
| 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<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 9-2-08<br>SIGNATURE: [signature] |

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: 5** | **DATE:** 04/07/08 (Monday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: CLEAN TUBING AND REDRILL TIPS, MOVE FISHING STRING TO GREENHUT.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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 Hrs.

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 64 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 | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The set-up Work Package is picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Moving Heavy Objects. An equipment and site inspection was conducted. No deficiencies noted |
| 08:20 | 11:00 | Cleaned drive tubing (dual string). |
| 11:00 | 12:00 | Re-drill tips for upcoming work. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Cleaned drive tubing (dual string). |
| 13:30 | 15:00 | Move fishing string to Green hut storage unit. |
| 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: 9-2-08
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:** 6 | **DATE:** 04/08/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CLEANING TUBING THREADS AND TRANSPORT HHU TO LOCATION.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 61 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 | The set-up Work Package is picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Pinching Hazards. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 10:00 | The HHU was transported to the C Tank Farm. The unit was evaluated for conductance of Alpha surveys. Due to rain and the presence of Radon, the Alpha survey will not be started until AM tomorrow. |
| 10:00 | 12:00 | Cleaned driving tubing threads and complete re-drill of drive tips. |
| 12:00 | 12:30 | Lunch Crew took off time in PM. |
| | | 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: 7-2-08
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:** 7 | **DATE:** 04/09/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: THE HHU AND BACKHOE WERE SURVEYED (ALPHA), REPAIRS COMPLETED AND WINCH PLATE INSTALLATION WAS INITIATED.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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 Hrs.

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

**WEATHER CONDITIONS** (373-2716)
Temperature 63 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 | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The set-up Work Package is picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Biological Hazards. An equipment and site inspection was conducted. No deficiencies noted |
| ---------- | ---------- | ***A weekly safety topic was conducted. CH2M Hill has transmitted two Recall notices Air Compressor and Toggle and Rotary Switch recalls. (1) Air Compressor: Hausfeld, Husky and Strike Force have a recall due to the protective covers on the motors are not made from the proper flame retardant material and can ignite, posing a fire hazard to consumers. Brand and model numbers will be checked for on-site equipment compatibility. (2) Toggle and Rotary Switches: Ensto have a recall due to an electrical pole that may remain energized when the switch is turned off. This poses a risk of electrical shock. Brand and model numbers will be checked for on-site equipment compatibility.*** |
| 08:20 | ---------- | The HHU is surveyed for Alpha per the new policy. |
| ---------- | ---------- | The bucket on the CASE backhoe was cleaned and repainted. |
| ---------- | ---------- | The foot-plate on the HHU was straightened after being bent by Central Machinery. |
| ---------- | 11:00 | The Alpha survey was conducted by J. Clayton/D. Youngblood and sent to the laboratory. It is estimated to take two days for counting. |
| 11:00 | 12:00 | Evaluate the winch mount for the HHU. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Work on the winch plate for the HHU. |
| 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: 4-2-08<br>SIGNATURE: [signature] |

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# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER: 8** | **DATE:** 04/10/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: AWAITING ALPHA SWIPES RESULTS AND FABRICATION OF WINCH BRACKET, C TANK FARM WALK-DOWN.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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 Hrs.

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 67 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 | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The set-up Work Package is picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to 3-way communication. An equipment and site inspection was conducted. No deficiencies noted |
| 08:20 | 12:00 | Personnel work on the HHU winch mount. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Personnel work on the winch mount. |
| 13:30 | 15:00 | Conduct site walk-down (C Tank farm). Electrical outlets were located. The walk-down No deficiencies 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: 9-2-08
SIGNATURE: Kent Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 9 | **DATE:** 04/11/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: PREJOB SAFETY MEETING, AWAIT FOR ALPHA SWIPE RESULTS AND BORE-HOLE SURVEYS COMPLETED.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 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:** 14:30
**CONTRACTOR TIME:** 0.5

**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature 65 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); J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:00 | The set-up Work Package is picked up. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Hearing Protection.. An equipment and site inspection was conducted. No deficiencies noted |
| 08:00 | 10:00 | A Pre-job safety meeting was conducted. |
| 10:00 | 12:00 | Mr. Clayton conducts radiological survey of bore-hole locations. No radiological contamination was noted. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:00 | Continue work on support equipment. |
| 14:00 | 14:30 | 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: 9-2-08<br>SIGNATURE: Kurt D. Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 10** | **DATE:** 04/14/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WIND, MOBILIZE INTO C TANK FARM AND SET-UP ON C6393, INITIATE DRIVING AND REPAIR DRIVE HEAD SUB.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 40 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)*
C6393 0 to 40 ft bgs

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

***DOCUMENTED DOWNTIME:***
AOP-008 1.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 61 f; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 0.0 ft bgs |
| Drive tip depth (shift end) | 40.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 42.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Abnormal Operating Procedures. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 10:45 | AOP-008 (wind) is in effect. However, the HHU can be mobilized and set-up. The air monitors are set-up. |
| 10:45 | 11:00 | Exit the C Tank Farm. |
| 11:00 | 11:30 | Lunch |
| 11:30 | 11:45 | AOP-008 was lifted @ 11:35. Dress and enter C Tank Farm. Initiate driving. |
| 11:45 | 12:13 | C6393: Set up drive tubing (2.5 inch). Drive to a depth of 7.8 ft bgs. Add a drive rod |
| 12:13 | 12:36 | 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. |
| 12:36 | 13:05 | 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. |
| 13:05 | 13:30 | 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. |
| 13:30 | 14:00 | Drive to a depth of 35.7 ft bgs. Add a drive rod. Drive to a depth of 40.0 ft bgs. |
| 14:00 | 14:45 | The HHU drive sub broke loose from the spindle. The spindle threads were cleaned and a replacement installed. |
| 14:45 | 15:00 | Exit C Tank farm. |
| 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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 11 | **DATE:** 04/15/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WIND AND EMERGENCY PREPAREDNESS EXCERISE, DRIVE TO A DEPTH OF 63.8 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 23.8 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)*
C6393 40 to 63.8 ft bgs

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

***DOCUMENTED DOWNTIME:***
Preparedness Exercise 2.5 hr/AOP-008 1.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 66 F; partly sunny/wind

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 40.0 ft bgs |
| Drive tip depth (shift end) | 63.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 66.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to 3-way communication. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 11:30 | An Emergency Preparedness Exercise was conducted from 09:00 to 11:30. A safety walk-down was conducted by Mr. Zane. No deficiencies were noted. |
| 11:30 | 12:00 | Lunch |
| 12:00 | 12:20 | Dress and enter the C Tank Farm from the SW Change Trailer. |
| 12:20 | 12:38 | Drive from 40 ft 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. |
| 12:38 | 13:05 | Drive to a depth of 51.7 ft bgs. Add a drive rod. Drive to a depth of 55.8 ft bgs. Add a drive rod. |
| 13:05 | 13:30 | Drive to a depth of 59.7 ft bgs. Add a drive rod. Drive to a depth of 63.8 ft bgs. Add a drive rod. |
| 13:30 | 14:45 | The weather station was contacted and sustained winds were at 21 mph. This stops our work in the farm. AOP-008 is in effect. Personnel review DOW. |
| 14:45 | 15:00 | Survey out support equipment used to repair the head. Exit C Tank Farm. |
| 15:00 | 15:30 | Secure 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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 12** | **DATE:** 04/16/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |
| **PURPOSE: C6393: DRIVE FROM 63.8 TO A DEPTH OF 131.8 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C6393 63.8 to 131.8 ft bgs

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

***DOCUMENTED DOWNTIME:***
Repair spindle 1.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 58 f; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 63.8 ft bgs |
| Drive tip depth (shift end) | 131.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 134.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:25 | The Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to securing doors in the wind. An equipment and site inspection was conducted. No deficiencies noted |
| ——— | ——— | A weekly safety topic was discussed. The subject was local weather. This year has brought a lot of wind. When wind speeds reach 20 mph and /or blowing dust occurs goggles are required for outside work. This dust can also cause allergic reactions, avoid prolonged contact with dust. If traveling this weekend, snow is expected on the mountain passes. Be prepared for adverse weather conditions. |
| 08:25 | 08:52 | C6393: Drive from 63.8 ft to a depth of 67.8 ft bgs. Add a drive rod. Drive to a depth of 71.7 ft bgs. Add a drive rod. |
| 08:52 | 09:28 | 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. |
| 09:28 | 09:55 | Drive to a depth of 83.7 ft bgs. Add a drive rod. Drive to a depth of 87.8ft bgs. Add a drive rod. |
| 09:55 | 10:23 | Drive to a depth of 91.8 ft bgs. Add a drive rod. Drive to a depth of 95.7 ft bgs. Add a drive rod. |
| 10:23 | 10:53 | Drive to a depth of 99.8 ft bgs. Add a drive rod. Drive to a depth of 103.7 ft bgs. Add a drive rod. |
| 10:53 | 11:24 | Drive to a depth of 107.8 ft bgs. Add a drive rod. Drive to a depth of 111.7 ft bgs. Add a drive rod. |
| 11:24 | 12:00 | Drive to a depth of 115.8 ft bgs. Add a drive rod. Drive to a depth of 119.8 ft bgs. Add a drive rod. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 12:57 | Drive to a depth of 123.7 ft bgs. Add a drive rod. Drive to a depth of 127.8 ft bgs. Add a drive rod. |
| 12:57 | 13:30 | Drive to a depth of 131.8 ft bgs. Add a drive rod. |
| 13:30 | 14:45 | The HHU drive sub broke loose from the spindle. The spindle threads were cleaned up and an replacement installed. |
| 14:45 | 15:00 | Exit C Tank farm. |
| 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: 9-2-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 13 | **DATE:** 04/17/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6393: DRIVE FROM 131.8 TO A DEPTH OF 192 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 60.2 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)*
C6393 131.8 to 192 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; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 131.8 ft bgs |
| Drive tip depth (shift end) | 192.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 194.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:25 | The Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to securing doors in the wind. An equipment and site inspection was conducted. No deficiencies noted |
| ---------- | ---------- | A weekly safety topic was discussed. The subject was local weather. This year has brought a lot of wind. When wind speeds reach 20 mph and /or blowing dust occurs goggles are required for outside work. This dust can also cause allergic reactions, avoid prolonged contact with dust. If traveling this weekend, snow is expected on the mountain passes. Be prepared for adverse weather conditions. |
| 08:25 | 08:52 | C6393: Drive from 131.8 to a depth of 134.7 ft bgs. Add a drive rod. Drive to a depth of 138.7 ft bgs. Add a drive rod. |
| 08:52 | 09:28 | Drive to a depth of 142.7 ft bgs. Add a drive rod. Drive to a depth of 146.8 ft bgs. Add a drive rod. |
| 09:28 | 09:55 | Drive to a depth of 150.7 ft bgs. Add a drive rod. Drive to a depth of 154.8ft bgs. Add a drive rod. |
| 09:55 | 10:23 | Drive to a depth of 158.7 ft bgs. Add a drive rod. Drive to a depth of 162.7 ft bgs. Add a drive rod. |
| 10:23 | 11:12 | Drive to a depth of 166.7 ft bgs. Add a drive rod. Drive to a depth of 170.8 ft bgs. Add a drive rod. |
| 11:12 | 12:00 | Drive to a depth of 174.7 ft bgs. Add a drive rod. Drive to a depth of 178.7 ft bgs. Add a drive rod. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:10 | Drive to a depth of 182.8 ft bgs. Add a drive rod. Drive to a depth of 186.8 ft bgs. Add a drive rod. |
| 13:10 | 14:00 | Drive to a depth of 192 ft bgs. Add a drive rod. Let the head cool down. |
| 14:00 | 15:00 | Exit C Tank farm. |
| 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: 9-2-08<br>SIGNATURE: |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 14** | **DATE:** 04/21/08 (Monday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: C6393: DRIVE FROM 192 TO A DEPTH OF 242 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E | |
| **REFERENCE MEASURING POINT:** Ground Level | | **TOTAL SHIFT FOOTAGE: 50 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)*

C6393 192 to 242 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 57 f; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 192.0 ft bgs |
| Drive tip depth (shift end) | 242.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 244.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson

License no. 1217

Ruban, I. Villareil (OP/CHG);P. Templeton, J. Clayton (HPT/CHG); M. Repko, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:25 | The Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Defensive Driving. An equipment and site inspection was conducted. No deficiencies noted |
| 08:25 | 09:03 | C6393: Drive from 192 to a depth of 195.8 ft bgs. Add a drive rod. Drive to a depth of 199.7 ft bgs. Add a drive rod. |
| 09:03 | 09:50 | Drive to a depth of 203.7 ft bgs. Add a drive rod. Drive to a depth of 207.8 ft bgs. Add a drive rod. |
| 09:50 | 10:28 | Drive to a depth of 211.7 ft bgs. Add a drive rod. Drive to a depth of 214.8 ft bgs. Add a drive rod. |
| 10:28 | 11:15 | Drive to a depth of 218.7 ft bgs. Add a drive rod. Drive to a depth of 222.8 ft bgs. Add a drive rod. |
| 11:15 | 12:00 | Drive to a depth of 226.7 ft bgs. Add a drive rod. Drive to a depth of 230.8 ft bgs. Add a drive rod. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:00 | Drive to a depth of 234.7 ft bgs. Add a drive rod. Drive to a depth of 238.8 ft bgs. Add a drive rod. |
| 13:00 | 13:15 | Drive to a depth of 242.0 ft bgs. |
| 13:15 | 14:00 | Initiate move to C6399. Review route map. |
| 14:00 | 15:00 | Exit C Tank farm. |
| 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: 9-2-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 15 | **DATE:** 04/22/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE SET-UP @ C6399 AND DRIVE FROM 0 TO A DEPTH OF 63.8 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 63.8 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)*

C6399 0 to 63.8 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 52 F; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 0.0 ft bgs |
| Drive tip depth (shift end) | 63.8ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 66.0 ft |

**SAMPLE SUMMARY**
N/A

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

| TIME FROM | TIME TO | WORK SUMMARY |
|---|---|---|
| 06:00 | 08:20 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to securing doors in the wind. An equipment and site inspection was conducted. No deficiencies noted |
| ---------- | ---------- | A weekly safety topic was discussed. The subject was Safety Equals Progress in the Vadose Zone Program. An article wrote by CH2M Hills Mr. Sydnor. Discussed was how we have logged one of the Best Safety records around. In spite of using heavy machinery almost every day we have not had a reportable injury and have not had so much as a first aid case in three years. Sydnor's team has used their hydraulic hammer to drive 47 probe holes, obtain 30 soil samples and installed two vadose monitoring nests for the T Tank farm Interim Surface Barrier project. In all they have drivin over 4,000 ft and completed 2,100 gross gamma logging events and 1,800 moisture logging events. |
| 08:20 | 09:40 | Complete set-up on C6399. Set-up to drive 2.5 inch tubing. |
| 09:40 | 10:15 | 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. |
| 10:15 | 10:54 | 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. |
| 10:54 | 11:30 | 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. |
| 11:30 | 12:15 | 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. |
| 12:15 | 12:45 | Lunch |
| 12:45 | 13:17 | Drive to a depth of 35.7 ft bgs. Add a drive rod. Drive to a depth of 39.7 ft bgs. |
| 13:17 | 13:51 | 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. |
| 13:51 | 14:24 | 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. |
| 14:24 | 14:51 | Drive to a depth of 59.8 ft bgs. Add a drive rod. Drive to a depth of 63.8 ft bgs. Add a drive rod. |
| 14:51 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: |

ENERGYSOLUTIONS

**Energy Solutions Inc. Western Operations**

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

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 16** | **DATE:** 04/23/08 (Wednesday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: REPLACE DRIVE HEAD SUB** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6399 63.8 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 53 F; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 63.8 ft bgs |
| Drive tip depth (shift end) | 63.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 66.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Driving and talking on the phone. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 09:00 | Dress and enter the C Tank Farm. |
| 09:00 | 09:15 | Warm equipment and initiate driving operations. |
| 09:15 | ——— | The drive sub came loose from the spindle. |
| ——— | 11:30 | The sub was removed, spindle threads cleaned up and a new sub installed. A ~24 hr cure time is advisable to adequately set-up the epoxy. |
| 11:30 | 12:00 | Lunch |
| 12:00 | 15:00 | Conduct site inspection and organize support equipment. |
| 15:00 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

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

***REVIEWED BY:*** KD Reynolds 09/03/08
TITLE: ES FIELD PROJECT MANAGER DATE:
SIGNATURE: D.E. Skoglie for K.D. Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399/C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 17** | **DATE:** 04/24/08 (Thursday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: CONTINUE DRIVING @ C6399 FROM 63.8 FT TO 123.8 FT BGS AND GEOPHYSICAL LOGGING (MOISTURE) @ C6393** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E | |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 60 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)*
C6399 63.8 to 123.8 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 57 F; partly sunny

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 63.8 ft bgs |
| Drive tip depth (shift end) | 123.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 126.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Biological hazards in SWP's. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 08:50 | Dress and enter the C Tank Farm. Warm equipment and initiate driving operations. |
| 08:50 | 09:30 | C6399: Drive from 63.8 ft to a depth of 67.8 ft bgs. Add a drive rod. Drive to a depth of 71.8 ft bgs. Add a drive rod. |
| 09:30 | 09:55 | 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. |
| 09:55 | 10:40 | 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. |
| 10:40 | 11:30 | Drive to a depth of 91.8 ft bgs. Add a drive rod. Drive to a depth of 95.7 ft bgs. Add a drive rod. |
| 11:30 | 12:00 | Lunch |
| 12:00 | 12:35 | Drive to a depth of 99.7 ft bgs. Add a drive rod. Drive to a depth of 103.7 ft bgs. Add a drive rod. |
| 12:35 | 13:15 | Drive to a depth of 107.8 ft bgs. Add a drive rod. Drive to a depth of 111.7 ft bgs. Add a drive rod. |
| 13:15 | 14:15 | Drive to a depth of 115.8 ft bgs. Add a drive rod. Drive to a depth of 119.8 ft bgs. Add a drive rod. |
| 14:15 | 14:45 | Drive to a depth of 123.8 ft bgs. Add a drive rod. |
| ——— | ——— | Conduct Moisture logging at C6393 from 237 to 151 ft bgs and repeat 184.75 to 187.5 ft bgs. |
| 14:45 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

***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: 9-2-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399/C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 18** | **DATE:** 04/28/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: DRIVE FROM 123.8 TO A DEPTH OF 175.8 FT BGS. ALSO MOISTURE LOGGING @ C6393.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 52 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)*
C6399 123.8 to 175.8 ft bgs

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

***DOCUMENTED DOWNTIME:***
Wind 3.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 55 F; cloudy/windy

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 123.8 ft bgs |
| Drive tip depth (shift end) | 175.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 178.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | *TIME* TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Personal Hygiene. An equipment and site inspection was conducted. No deficiencies noted |
| ——— | ——— | Conduct Moisture logging @ C6393 from 153.5 to 77.75 ft bgs and a repeat @ 109.75 to 111 ft bgs. |
| 08:20 | 09:10 | Dress and enter C Tank Farm. C6399: Drive from 123.8 to a depth of 127.8 ft bgs. Add a drive rod. Drive to a depth of 131.8 ft bgs. Add a drive rod. |
| 09:10 | 09:31 | Drive to a depth of 135.7 ft bgs. Add a drive rod. Drive to a depth of 139.8 ft bgs. Add a drive rod. |
| 09:31 | 09:50 | Drive to a depth of 143.8 ft bgs. Add a drive rod. Drive to a depth of 147.7 ft bgs. Add a drive rod. |
| 09:50 | 10:12 | Drive to a depth of 151.8 ft bgs. Add a drive rod. Drive to a depth of 155.7 ft bgs. Add a drive rod. |
| 10:12 | 10:40 | Drive to a depth of 159.8 ft bgs. Add a drive rod. Drive to a depth of 163.7 ft bgs. Add a drive rod. |
| 10:40 | 11:07 | Drive to a depth of 167.8 ft bgs. Add a drive rod. Drive to a depth of 171.7 ft bgs. Add a drive rod. |
| 11:07 | 11:40 | Drive to a depth of 175.8 ft bgs. Add a drive rod. |
| 11:40 | 11:55 | Secure site and equipment. Exit C Tank Farm. |
| 11:55 | 12:25 | Lunch |
| 12:15 | 15:30 | Field operations were shut down for wind and a safety exercise @ C Tank Farm. Personnel conduct clean-up activities. |

| | |
|---|---|
| ***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: 04/05/08<br>SIGNATURE: DE Skoglie for K.D. Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399/C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 19** | **DATE:** 04/29/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: DRIVE FROM 175.8 TO A DEPTH OF 219.8 FT BGS. ALSO GAMMA LOGGING @ C6393.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 44 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)*
C6399 175.8 to 219.8 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 56 F; cloudy

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 175.8 ft bgs |
| Drive tip depth (shift end) | 219.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 222.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Abnormal Operating Procedures. Dress and Enter C Tank Farm. An equipment and site inspection was conducted. No deficiencies noted |
| 08:20 | ---------- | Conduct Gamma logging @ C6393 from 239 to 56.5 ft bgs and a repeat @ 99.5 to 105 ft bgs. |
| ---------- | 09:10 | C6399: Drive from 175.8 ft to a depth of 179.8 ft bgs. Add a drive rod. Drive to a depth of 183.7 ft bgs. Add a drive rod. |
| 09:10 | 11:00 | Drive to a depth of 187.8 ft bgs. Add a drive rod. Drive to a depth of 191.8 ft bgs. Add a drive rod. |
| 11:00 | 11:45 | Exit C Tank Farm and allow the head to cool. Eat Lunch. |
| 11:45 | 12:25 | Drive to a depth of 195.7 ft bgs. Add a drive rod. Drive to a depth of 199.8 ft bgs. Add a drive rod. |
| 12:25 | 13:30 | Drive to a depth of 203.7 ft bgs. Add a drive rod. Drive to a depth of 207.8 ft bgs. Add a drive rod. |
| 13:30 | 14:10 | Drive to a depth of 211.7 ft bgs. Add a drive rod. Drive to a depth of 215.7 ft bgs. Add a drive rod. |
| 14:10 | 14:45 | Drive to a depth of 219.8 ft bgs. Add a drive rod. |
| 14:45 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399/C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 20** | **DATE:** 04/30/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: DRIVE FROM 219.8 TO A DEPTH OF 242 FT BGS. ALSO GAMMA LOGGING @ C6393.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 22.2 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)*
C6399 219.8 to 242 ft bgs

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

***DOCUMENTED DOWNTIME:***
Wind – 3.5 hrs.

**WEATHER CONDITIONS** (373-2716)
Temperature 56 F; cloudy

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 219.8 ft bgs |
| Drive tip depth (shift end) | 242.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 244.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Cutting and Welding. Tank Farm. Dress and enter the C Tank farm. An equipment and site inspection was conducted. No deficiencies noted. |
| 08:20 | ---------- | Conduct Gamma logging @ C6393 from 61 to 0.5 ft bgs with a repeat of 0.5 to 7.5 ft bgs. |
| ---------- | 12:00 | Wind is blowing in excess of 20 mph (driving is down AM). |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:10 | C6399: Drive from 219.8 to a depth of 223.7 ft bgs. Add a drive rod. Drive to a depth of 227.8 ft bgs. Add a drive rod. |
| 13:10 | 13:45 | Drive to a depth of 231.8 ft bgs. Add a drive rod. Drive to a depth of 235.7 ft bgs. Add a drive rod. |
| 13:45 | 14:16 | Exit C Tank Farm and allow the head to cool. Eat Lunch. |
| 14:16 | 14:45 | Drive to a depth of 239.8 ft bgs. Add a drive rod. Drive to a depth of 242 ft bgs. |
| 14:45 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399/C6391 | **WELL NUMBER:** N/A | **REPORT NUMBER: 21** | **DATE:** 05/01/08 (Thursday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: C6391: DRIVE FROM 0.0 TO A DEPTH OF 68.8 FT BGS. ALSO MOISTURE LOGGING @ C6399.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E | |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 68.8 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)*
C6391 0.0 to 68.8 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 59 F; cloudy

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 0.0 ft bgs |
| Drive tip depth (shift end) | 68.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 71.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | *TIME* TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Safety Inspections. A weekly safety meeting was held on Industrial Ergonomics (see attached information). An equipment and site inspection was conducted. No deficiencies noted |
| 08:20 | ——— | Move the HHU and support equipment to C6391. The equipment was moved to the West side of the diversion box. Electrical cords were disconnected for the HHU mob to the new location. |
| ——— | ——— | Conducting Moisture logging @ C6399 from 237.75 to 130.25 ft bgs with a repeat from 163 to 166 and 132 to 137 ft bgs. |
| ——— | 10:00 | The electrical cords were reconnected. |
| 10:00 | 10:30 | C6391: Drive from 0 ft to a depth of 3.8 ft bgs. Add a drive rod. Drive to a depth of 7.7 ft bgs. Add a drive rod. |
| 10:30 | 11:00 | 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. |
| 11:00 | 11:40 | Exit C Tank Farm and allow the head to cool. Eat Lunch. |
| 11:40 | 12:12 | Drive to a depth of 19.8 ft bgs. Add a drive rod. Drive to a depth of 23.7 ft bgs. Add a drive rod. |
| 12:12 | 12:40 | 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. |
| 12:40 | 13:12 | Drive to a depth of 35.7 ft bgs. Add a drive rod. Drive to a depth of 39.8 ft bgs. Add a drive rod. |
| 13:12 | 13:40 | Drive to a depth of 43.7 ft bgs. Add a drive rod. Drive to a depth of 47.8 ft bgs. Add a drive rod. Break. |
| 13:40 | 14:05 | Drive to a depth of 51.7 ft bgs. Add a drive rod. Drive to a depth of 55.8 ft bgs. Add a drive rod. |
| 14:05 | 14:30 | 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. |
| 14:30 | ——— | Drive to a depth of 68.8 ft bgs. Add a drive rod. |
| ——— | 15:00 | Geophysical logging (Moisture) was conducted @ C6399 from 237 to 150 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

***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: 9-2-08
SIGNATURE: [signature]

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# Industrial Ergonomics

You've probably heard the term "ergonomics" before. It's a relatively new field of study concerning how a person interacts with the working environment. "Ergonomics" is a broad field, but the basic goal of an ergonomics program is injury prevention. This injury prevention is accomplished by fitting the job to the worker instead of fitting the worker to the job. This week's **Tail Gate Safety Topic** takes a look at ergonomic concerns in the workplace, and what you can do to prevent injuries caused by poor ergonomics. Many of the suggestions in this topic can be adapted for use outside the workplace, helping you to prevent injuries at home.

Injuries arising from poor ergonomic conditions typically involve the bones, muscles, joints, tendons, and nerves. Symptoms of these injuries are:

- painful joints
- pain, tingling or numbness in hands or feet
- pain in wrists, shoulders, forearms, knees, etc.
- back or neck pain
- fingers or toes turning white
- shooting or stabbing pains in arms or legs
- swelling or inflammation
- stiffness
- weakness or clumsiness in hands
- burning sensations
- heaviness

These symptoms could also be the result of other medical conditions, so check with your doctor if you are concerned about any of these.

The good news is that ergonomic problems can usually be solved by simple, common-sense solutions. Injuries that are caused by awkward posture can be prevented by improving your position while you work. Any time you must twist your body, work overhead, kneel, bend over, or squat you increase your risk of an injury. Repetition of these movements further increases your chance of injury.

Occasional awkward posture is probably no cause for alarm, but if you find yourself repeatedly bending, stretching, and twisting, making some simple adjustments to the work environment can solve the problem of awkward posture. Your workstation may need some adjustment, or the materials you use in performing your job may need to be re-arranged to eliminate bending, twisting, and other awkward movements. Store frequently-used materials in front of you at waist height. Heavier objects should not be placed overhead but they don't have to be on the floor, either. Place them at a level so they are easier to lift. Use of mechanical lifting equipment may also be possible.

Repetitive motion tasks can also lead to injuries. If your job requires you to make the same motions repeatedly, consider learning the correct posture for the job. Check with your company's safety department for ideas on reducing injury from repetitive motion tasks. You may find that there is equipment available to use which will reduce your chance of injury. However, don't depend only on a back or wrist brace to protect you. Your best prevention is to maintain the correct position for the task, take recommended breaks, and do any recommended exercises to help prevent injury.

Some other causes of ergonomic injuries are:

- sustained muscle exertion, which reduces blood flow to the muscles and causes muscle strains and sprains
- contact stresses, which are injuries that occur due to repeated contact with a hard surface
- extreme temperature, which can reduce sensitivity to pain and reduce blood flow
- vibration, which can reduce blood flow and sensory response

In some of these cases it may not be possible to make a simple adjustment to overcome the problem. Engineered controls may be the best solution, so check with your safety department. There are factors within your control, however. Sometimes you may be tempted to use your body itself as a tool. Have you ever used your hand or foot to kick or pound an object? Have you ever taken a shortcut and neglected to use the right piece of equipment to do the job? You may have substituted your hands for a vise, your knee for a ram, or your back for a hand truck. All of these situations put you at risk of an injury. That shortcut could cost you a lot of time and unnecessary suffering. Think twice before you use your body as a tool. It will thank you for it!

This week's **Tail Gate Safety Topic** has discussed the symptoms and causes of injuries caused by poor ergonomics. Being aware of the causes of injuries is the first step in preventing them. As you work, take a look around you at the situations which could cause an injury and take steps to correct them. Fitting the job to the person is not a difficult thing to do, and it will help keep you working injury-free for a long time to come!

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6391 | **WELL NUMBER:** N/A | **REPORT NUMBER: 22** | **DATE:** 05/05/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6391: DRIVE FROM 68.8 TO A DEPTH OF 83.8 FT BGS. ALSO GAMMA LOG C6391 FROM 69 TO 0.0 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C6391 68.8 to 83.8 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 64 F; cloudy

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 68.8 ft bgs |
| Drive tip depth (shift end) | 83.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 86.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Reducing Stress. An equipment and site inspection was conducted. No deficiencies noted |
| 08:20 | ——— | Move the HHU and support equipment off of C6391 to allow Mr. Randall to Gamma log the upper section of this bore-hole. The equipment was moved to the West side of the diversion box. Electrical cords were disconnected for the HHU mob to the new location. |
| ——— | 12:00 | Conducting Gamma logging @ C6391 from 68.5 to 1 ft bgs with a repeat of 59.5 to 60 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:35 | Dress and enter C Tank Farm. Set back up on bore-hole C6391 and conduct driving. |
| 13:35 | 14:00 | C6391: Drive from 68.8 ft to a depth of 72.7 ft bgs. Add a drive rod. Drive to a depth of 76.8 ft bgs. Add a drive rod. |
| 14:00 | 14:45 | Drive to a depth of 80.7 ft bgs. Add a drive rod. Drive to a depth of 83.8 ft bgs. Add a drive rod. |
| 14:45 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399/C6391/C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 23** | **DATE:** 05/06/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6391: DRIVE FROM 83.8 TO A DEPTH OF 152 FT BGS. ALSO GAMMA LOG C6399 FROM 237 TO 0.0 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6391 83.8 to 152 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 63 F; cloudy

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 83.8 ft bgs |
| Drive tip depth (shift end) | 152.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 154.0 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR:** K. Olson

License no. 1217

S. Snook, I. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); B. Randall (NW Geophysics); M. Ehrgott, D. Skoglie (ENERGY SOLUTIONS)

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:25 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Nesting birds. An equipment and site inspection was conducted. No deficiencies noted |
| ---------- | ---------- | Conducting Gamma logging @ C6399 from 237 to 0.0 ft bgs. |
| 0825 | 09:05 | C6391: Drive from 83.8 ft to a depth of 87.7 ft bgs. Add a drive rod. Drive to a depth 91.7 ft bgs. Add a drive rod. |
| 09:05 | 09:46 | Drive to a depth of 95.7 ft bgs. Add a drive rod. Drive to a depth of 99.8 ft bgs. Add a drive rod. |
| 09:46 | 10:22 | Drive to a depth of 103.7 ft bgs. Add a drive rod. Drive to a depth of 107.8 ft bgs. Add a drive rod. |
| 10:22 | 10:33 | Drive to a depth of 111.7 ft bgs. Add a drive rod. Drive to a depth of 115.8 ft bgs. Add a drive rod. |
| 10:33 | 11:00 | Drive to a depth of 119.7 ft bgs. Add a drive rod. Drive to a depth of 123.8 ft bgs. Add a drive rod. |
| 11:00 | 11:25 | Drive to a depth of 127.7 ft bgs. Add a drive rod. Drive to a depth of 131.8 ft bgs. Add a drive rod. |
| 11:25 | 12:00 | Drive to a depth of 135.8 ft bgs. Add a drive rod. Drive to a depth of 139.7 ft bgs. Add a drive rod. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Drive to a depth of 143.7 ft bgs. Add a drive rod. Drive to a depth of 147.7 ft bgs. Add a drive rod. |
| 13:30 | 13:55 | Drive to a depth of 152.0 ft bgs. |
| 13:55 | 14:45 | Move and set-up the HHU and support equipment on C6397. |
| 14:45 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6397/C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 24** | **DATE:** 05/07/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6397: DRIVE FROM 0.0 TO A DEPTH OF 111.8 FT BGS. ALSO GAMMA LOGGING @ C6399.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 111.8 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)*
C6397 0.0 to 111.8 ft bgs

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

***DOCUMENTED DOWNTIME:***
Wind- 1.5 hr

**WEATHER CONDITIONS** (373-2716)
Temperature 65 F; wind

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 0.0 ft bgs |
| Drive tip depth (shift end) | 111.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 114.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, I. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); B. Randall (NW Geophysics); M. Ehrgott (ENERGY SOLUTIONS)

| *TIME* From | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:25 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Bug Bites and Bee Stings. An equipment and site inspection was conducted. No deficiencies noted |
| —— | ———— | Conducting Moisture logging @ C6399 from 135.5 to 1 ft bgs with a repeat of 55 to 60 ft bgs. |
| 08:25 | 08:45 | Haul diesel fuel to HHU. Izzy utilized gator to haul drive rods to C6397. |
| 0845 | 08:57 | C6397: Drive from 0.0 ft to a depth of 3.8 ft bgs. Add a drive rod. Drive to a depth of 7.7 ft bgs. Add a drive rod. |
| 08:57 | 09:14 | 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. |
| 09:14 | 09:30 | Drive to a depth of 19.8 ft bgs. Add a drive rod. Drive to a depth of 23.7 ft bgs. Add a drive rod. |
| 09:30 | 09:47 | Drive to a depth of 27.8 ft bgs. Add a drive rod. Drive to a depth of 31.7 ft bgs. Add a drive rod. |
| 09:47 | 10:07 | Drive to a depth of 35.8 ft bgs. Add a drive rod. Drive to a depth of 39.8 ft bgs. Add a drive rod. |
| 10:07 | 10:24 | Drive to a depth of 43.7 ft bgs. Add a drive rod. Drive to a depth of 47.8 ft bgs. Add a drive rod. |
| 10:24 | 10:42 | Drive to a depth of 51.7 ft bgs. Add a drive rod. Drive to a depth of 55.8 ft bgs. Add a drive rod. |
| 10:42 | 11:02 | Drive to a depth of 59.7 ft bgs. Add a drive rod. Drive to a depth of 63.8 ft bgs. Add a drive rod. |
| 11:02 | 11:21 | Drive to a depth of 67.7 ft bgs. Add a drive rod. Drive to a depth of 71.8 ft bgs. Add a drive rod. |
| 11:21 | 11:44 | 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. |
| 11:44 | 12:00 | Drive to a depth of 83.8 ft bgs. Add a drive rod. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

**FIELD ACTIVITY REPORT - TEXT CONTINUATION PAGE**

Page 2 of 2

| Date | Well No. | Continuation of Report No. |
|---|---|---|
| 05/07/08 | C6397 | 24 |

DESCRIPTION OF OPERATIONS/REMARKS

| | |
|---|---|
| 12:00 – 12:30 | Lunch |
| 12:30 – 14:00 | Dress and enter the C Tank farm. Drive from 83.8 to 111.8 ft bgs. Add a drive rod. |
| 14:00 – 15:30 | Secure the site and equipment. |
| | NOTE: The wind shuts down in farm activities @ 14:00 hrs. |

| | | | | | |
|---|---|---|---|---|---|
| Report By | DE Skoglie | Reviewed By | KD Reynolds | | |
| Title | ES SITE TECHNICAL/SAFETY | Title | ES FIELD PROJECT MANAGER | Date | 9-2-08 |
| Signature | David E. Skoglie | Signature | Kent D. Reynolds | | |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6397/C6391/C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER: 25** | **DATE:** 05/08/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6397: DRIVE FROM 111.8 TO A DEPTH OF 152 FT BGS. C6395 DRIVE FROM 0 TO A DEPTH OF 27.8 FT BGS. ALSO GAMMA AND MOISTURE LOGGING @ C6391** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6397 111.8 to 152 ft bgs

C6395 0 to 27.8 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 67 F; wind

**CASING SUMMARY**

| | | |
|---|---|---|
| Drive tip depth (shift start) | C6397 111.8 ft bgs | C6395 152.0 ft bgs |
| Drive tip depth (shift end) | 152.0 ft bgs | 27.8 ft bgs |
| Casing stick up (shift end) | 2.0 ft | 2.2 ft bgs |
| Drive String Length | 154.0 ft | 30.0 ft bgs |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, I. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); B. Randall (NW Geophysics); M. Ehrgott (ENERGY SOLUTIONS)

| *TIME* From | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Be aware of your surroundings. An equipment and site inspection was conducted. No deficiencies noted |
| ---- | ---------- | Conducting Gamma and Moisture logging @ C6391. Gamma 153 to 69 ft and Moisture 153 to 125 ft bgs. |
| 08:20 | 09:28 | C6397: Drive from 111.8 ft to a depth of 115.7 ft bgs. Add a drive rod. Drive to a depth of 119.8 ft bgs. Add a drive rod. |
| 09:28 | 10:40 | Drive to a depth of 123.7 ft bgs. Add a drive rod. Drive to a depth of 127.8 ft bgs. Add a drive rod. |
| 10:40 | 11:45 | Drive to a depth of 131.7 ft bgs. Add a drive rod. Drive to a depth of 135.8 ft bgs. Add a drive rod. Stop to let the head cool. |
| 11:45 | 12:15 | Lunch |
| 12:15 | 13:00 | Drive to a depth of 139.7 ft bgs. Add a drive rod. Drive to a depth of 143.8 ft bgs. Add a drive rod. |
| 13:00 | 13:40 | Drive to a depth of 147.7 ft bgs. Add a drive rod. Drive to a depth of 152 ft bgs. Add a drive rod. |
| 13:40 | 14:10 | Move and set-up the HHU and support equipment on C6395. Drive casing to depth of 3.8 ft bgs. |
| 14:10 | 14:23 | Drive to a depth of 7.8 ft bgs. Add a drive rod. Drive to a depth of 11.7 ft bgs. Add a drive rod. |
| 14:23 | 14:44 | Drive to a depth of 15.8 ft bgs. Add a drive rod. Drive to a depth of 19.7 ft bgs. Add a drive rod. |
| 14:44 | 15:00 | Drive to a depth of 23.8 ft bgs. Add a drive rod. Drive to a depth of 27.8 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

***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: 9-2-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6395/C6391 | **WELL NUMBER:** N/A | **REPORT NUMBER: 26** | **DATE:** 05/09/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6395: DRIVE FROM 27.8 TO A DEPTH OF 111.8 FT BGS. MOISTURE LOGGING @ C6391.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 84 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)*
C6395 27.8 to 111.8 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 64 F; fair

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 27.8 ft bgs |
| Drive tip depth (shift end) | 111.8 ft bgs |
| Casing stick up (shift end) | 2.2 ft |
| Drive String Length | 114.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR**: K. Olson
License no. 1217
S. Snook, I. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); B. Randall (NW Geophysics); M. Ehrgott (ENERGY SOLUTIONS)

| *TIME* From | *TIME* TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:32 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Substantial footwear. ***A weekly safety meeting was discussed as follows by M.r Ehrgott. Lessons Learned: An employee injures both wrists trying to open the hood of a truck. Analysis: The driver was trained in the technique to open the hood with both feet secured in the bumper slots and hands firmly gripped in the hood slot. Employees should ask for/accept assistance when it is needed. Engineering solutions should be considered when strenuous physical tasks must be routinely performed.*** An equipment and site inspection was conducted. No deficiencies noted |
| 08:32 | 09:03 | C6395: Drive from 27.8 ft to a depth of 31.8 ft bgs. Add a drive rod. Drive to a depth of 35.7 ft bgs. Add a drive rod. Conducting Moisture logging @ C6391. Moisture 125 to 31 ft bgs. |
| 09:03 | 09:28 | Drive to a depth of 39.8 ft bgs. Add a drive rod. Drive to a depth of 43.7 ft bgs. Add a drive rod. |
| 09:28 | 10:02 | Drive to a depth of 47.8 ft bgs. Add a drive rod. Drive to a depth of 51.7 bgs. Add a drive rod. |
| 10:02 | 10:30 | Drive to a depth of 55.8 ft bgs. Add a drive rod. Drive to a depth of 59.7 ft bgs. Add a drive rod. |
| 10:30 | 11:00 | Drive to a depth of 63.8 ft bgs. Add a drive rod. Drive to a depth of 67.7 ft bgs. Add a drive rod. |
| 11:00 | 11:25 | Drive to a depth of 71.8 ft bgs. Add a drive rod. Drive to a depth of 75.7 ft bgs. Add a drive rod. |
| 11:25 | 12:30 | Drive to a depth of 79.8 ft bgs. Add a drive rod. Let the head cool and take lunch. |
| 12:30 | 12:17 | Mr. Rob Zane on location for weekly inspection. |
| 12:17 | 12:38 | Drive to a depth of 83.7 ft bgs. Add a drive rod. Drive to a depth of 87.8 ft bgs. Add a drive rod. |
| 12:38 | 13:00 | 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. |
| 13:00 | 13:20 | Drive to a depth of 99.7 ft bgs. Add a drive rod. Drive to a depth of 103.8 ft bgs. |
| 13:20 | 13:45 | Drive to a depth of 107.7 ft bgs. Add a drive rod. Drive to a depth of 111.8 ft bgs. Add a drive rod. |
| 13:45 | 14:30 | Restage the green hut for sample breakdown and packaging. Secure site and equipment. Exit C Tank Farm. |

***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: 9-2-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6395/C6391/C6394/C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 27** | **DATE:** 05/12/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CAT<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6395: DRIVE FROM 111.8 TO A DEPTH OF 152 FT BGS. MOISTURE LOGGING @ C6391 AND GAMMA LOGGING @ C6375.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 40.2 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)*

C6395 111.8 to 152 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 75 F; fair

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 111.8 ft bgs |
| Drive tip depth (shift end) | 152.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 154.0 ft |

**SAMPLE SUMMARY**
N/A

**OPERATOR:** K. Olson
License no. 1217
S. Snook, I. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); B. Randall (NW Geophysics); M. Ehrgott (ENERGY SOLUTIONS)

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:32 | The tank farm key and Work Package is picked up by the NCO. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Focus And hand/eye coordination. An equipment and site inspection was conducted. No deficiencies noted |
| ------ | ---------- | Conducting Moisture logging @ C6391. Moisture 40 to 1.0 ft bgs and repeat 35.5 to 36.25 ft bgs. |
| 08:32 | 09:03 | C6395: Drive from 111.8 ft to a depth of 115.8 ft bgs. Add a drive rod. Drive to a depth of 119.7 ft bgs. Add a drive rod. |
| 09:03 | 09:36 | Drive to a depth of 123.7 ft bgs. Add a drive rod. Drive to a depth of 127.7 ft bgs. Add a drive rod. |
| 09:36 | 10:14 | Drive to a depth of 131.8 ft bgs. Add a drive rod. Drive to a depth of 135.8 bgs. Add a drive rod. |
| 10:14 | 10:46 | Drive to a depth of 139.8 ft bgs. Add a drive rod. Drive to a depth of 143.7 ft bgs. Add a drive rod. |
| 10:46 | 11:16 | Drive to a depth of 147.8 ft bgs. Add a drive rod. Drive to a depth of 152 ft bgs. Add a drive rod. |
| 11:16 | 12:00 | Move the HHU and support equipment to C6394. Move 4 ft SE. |
| ------ | ---------- | Conducting Gamma logging @ C6397 from 153 to 90.5 ft bgs and repeat at 99.5 to 103.5 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:15 | Sampling string preparation. |
| 13:15 | 15:00 | Meeting Sampling and tubing back-pull/sleeve. A 4 inch over-drill will be fabricated. This may allow us to remove tubing with none or minimal decon. |
| 15:00 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 28** | **DATE:** 05/13/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: DRIVE FROM 0.0 TO A DEPTH OF 17 FT BGS OBTAINING TWO SAMPLES. GAMMA LOGGING @ C6397.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 0 to 17 ft bgs

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

***DOCUMENTED DOWNTIME:***
Rain/alpha survey – 3 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 72 F; rain

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 0.0 ft bgs |
| Drive tip depth (shift end) | 17.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 19.0 ft |

**SAMPLE SUMMARY**

SAMPLE: B1VJ54 9 to 11 ft 40% recovery
SAMPLE: B1VJ55 15 to 17 ft 40% recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Weekly Inspections. Weekly inspection conducted last week. An equipment and site inspection was conducted. No deficiencies noted |
| ----- | ---------- | Conducting Gamma logging @ C6397 from 90 to 0.0 ft bgs. |
| 08:30 | 09:10 | Complete set-up @ C6394. Load and transport 25 sections of the Dual Wall Sampling System into the C Tank Farm. Set-up the dual wall sampling system. |
| 09:10 | 09:48 | Drive to a depth of 3.8 ft bgs. Add DWSS tubing. Drive to a depth of 7.7 ft bgs. Add DWSS tubing. |
| 09:48 | 10:20 | Drive to a depth of 9 ft bgs. Trip the inner string and dummy tip out. Trip a sampler to bottom. |
| 10:20 | 10:50 | Drive the sample (B1VJ54) from 9 to 11 ft bgs @ 10:25. Trip the sample to surface. The NCO (Mr. Hall) packages the sample. Trip the inner string and dummy tip to bottom. Add DWSS tubing. |
| 10:50 | 11:05 | Drive to a depth of 11.8 ft bgs. Add DWSS tubing. Drive to a depth of 15 ft bgs. |
| 11:05 | 11:20 | Trip the inner string and dummy tip out. Trip a sampler to bottom. |
| 11:20 | 12:20 | Drive the sample (B1VJ55) from 15 to 17 ft bgs @ 11:30. Trip the sample to surface. The NCO (Mr. Hall) packages the sample. Trip the inner string and dummy tip to bottom. Add DWSS tubing. |
| 12:20 | 13:00 | Secure site and equipment. |
| 13:00 | -------- | Rain delay due to alpha survey requirements. |
| -------- | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 29** | **DATE:** 05/14/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: DRIVE FROM 17 TO A DEPTH OF 36 FT BGS OBTAINING ONE SAMPLE. MOISTURE LOGGING @ C6397.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 17 to 36 ft bgs

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

***DOCUMENTED DOWNTIME:***
Rain – 2.25 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 78 F; rain

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 17.0 ft bgs |
| Drive tip depth (shift end) | 36.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 38.0 ft |

**SAMPLE SUMMARY**

SAMPLE: B1VJ56 26 to 28 ft 100% recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Driving without the use of a cell phone. An equipment and site inspection was conducted. No deficiencies noted |
| ----- | ---------- | Conducting Moisture logging @ C6397 from 152 to 87.75 ft bgs with a repeat of 106.75 to 110 ft bgs. |
| 08:30 | 09:15 | C6394: Drive from 17 ft bgs to a depth of 20.8 ft bgs. Add DWSS tubing. Drive to a depth of 24.7 ft bgs. Add DWSS tubing. |
| 09:15 | 10:20 | Drive to a depth of 26 ft bgs. Trip the inner string and dummy tip out. Trip a sampler to bottom. |
| 10:20 | 12:05 | Drive the sample (B1VJ56) from 26 to 28 ft bgs @ 12:00. Trip the sample to surface. The NCO (Mr. Hall) packages the sample. Trip the inner string and dummy tip to bottom. Add DWSS tubing. |
| 12:05 | 12:20 | Drive to a depth of 28.8 ft bgs. Add DWSS tubing. Drive to a depth of 32.7 ft bgs. Add DWSS tubing. |
| 12:20 | 12:50 | Lunch |
| 12:50 | 13:00 | Drive to a depth of 36 ft bgs. |
| 13:00 | 13:15 | Secure site and equipment. |
| 13:15 | 15:30 | Rain delay due to alpha requirements. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER: 30** | **DATE:** 05/15/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: DRIVE FROM 36 ft bgs TO A DEPTH OF 42 FT BGS OBTAINING ONE SAMPLE..** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 6 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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 36 to 42 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 97 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 36.0 ft bgs |
| Drive tip depth (shift end) | 42.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 44.0 ft |

**SAMPLE SUMMARY**

SAMPLE: B1VJ57 36 to 38 ft 100% recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:34 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Wind Hazards. A weekly safety meeting was conducted with a topic of Personal Hygiene (see attachment). An equipment and site inspection was conducted. No deficiencies noted |
| 08:34 | 09:20 | Trip inner tubing from the DWSS. Trip a sampler to depth and set-up for driving. |
| 09:20 | 10:15 | C6394: Drive a sample (B1VJ57) from 36 to 38 ft bgs. Recovery was 100%. The sample was packaged and transported to the laboratory. The sample was drove @ 10:00. |
| 10:15 | 10:30 | The inner string and solid tip was tripped to bottom and adjusted for driving. |
| 10:30 | 11:30 | Drive from 38 to a depth of 39.7 ft bgs. Add DWSS tubing. Drive to a depth of 42 ft bgs. |
| 11:30 | 13:00 | CH2M Hill lunch. |
| 13:00 | ---------- | Conduct maintenance on rig. |
| ---------- | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

# Good Hygiene on the Job

There's more to good hygiene than being clean. When you're working with chemicals or other hazardous substances, the word "hygiene" takes on a meaning beyond smelling good and looking nice. The goal of good hygiene on the job is to prevent accidental exposures caused by inhaling or ingesting hazardous substances. This week's **Tail Gate Safety Topic** discusses the seven major good hygiene practices. By consistently practicing good hygiene when working with hazardous substances, exposures caused by accidental cross-contamination can be prevented.

**Smoke, eat, and drink only in designated areas away from areas where hazardous materials are used or stored.** Small amounts of the substances may be present in the area, and smoking, eating, and drinking nearby will cause you to inhale or ingest the hazardous material. You should always wash before smoking, eating, or drinking if you have been working with hazardous materials. (now would be a good time to reference your substance abuse prevention program)

**Keep work clothes clean and in good condition.** Holes or tears will allow hazardous materials to get on your clothes or skin, increasing the likelihood that you will be exposed to the substance.

**Do not mix contaminated clothing with your home laundry.** Not only will cross-contamination occur, but it is possible to cause a fire if these clothes are laundered. Find out what to do with your contaminated clothing before you leave work. Many companies have an industrial laundry facility specifically for contaminated clothing.

**If you splash hazardous materials on your eyes, skin, or clothing, wash promptly in the proper manner, even if you have no apparent symptoms.** The MSDS will provide information about what to do in case of splashes. Of course, the best time to look at the MSDS is before you use the substance, not when an emergency happens. In the event of an injury, consult your E.M.S. or Medical Safety Program

**Always wash before you apply makeup, lotion, lip balm, or gloves.** Applying these to contaminated skin is likely to cause an accidental exposure.

**Remove contact lenses when working in an area where vapors are present.** Contact lenses absorb substances from the air, causing eye irritation and other potentially serious conditions.

**Keep hazardous material storage areas clean.** In case of a spill, the area should be cleaned according to proper spill control and clean-up procedures. Materials used to clean up the spill must also be disposed of properly.

These practices help keep hazardous materials away from and out of your body. None of them are difficult to do. Perhaps the hardest thing about practicing good hygiene on the job is to overcome bad hygiene habits. After all, no one usually notices a health effect right away if they eat or smoke in a hazardous materials area. Gradually, bad habits replace good ones. Over time, because of chronic exposure to hazardous materials caused by these bad habits, a health effect may appear. If you are aware of any personal bad hygiene habits, the key to changing them is to remember that, in the long run, your good health is at risk because of the bad habit. Begin to change those bad habits today and follow your safety meetings meticulously!

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6395/C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 31** | **DATE:** 05/19/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: DRIVE FROM 42 TO A DEPTH OF 59 FT BGS OBTAINING ONE SAMPLE. MOISTURE LOGGING @ C6395 AND C6397.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

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

C6394 42 to 59 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 92 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 42.0 ft bgs |
| Drive tip depth (shift end) | 59.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 61.0 ft |

**SAMPLE SUMMARY**

SAMPLE: B1VJ58 42 to 44 ft 95% recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:44 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Wind Hazards.. An equipment and site inspection was conducted. No deficiencies noted |
| 08:44 | 10:30 | C6394: Drive a sample (B1VJ58) from 42 to 44 ft bgs. Recovery was 95%. The sample was packaged and transported to the laboratory. The sample was drove @ 09:45. |
| ——— | ——— | Mr. Olson conducts his whole body count. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:15 | Drive from 44 ft to a depth of 47.8 ft bgs. Add a drive rod. Drive to a depth of 51.8 ft bgs. Add a drive rod. |
| ——— | ——— | NOTE: The WBGT is 78.8 F @ 13:00 hrs. |
| 13:15 | 15:00 | Drive to a depth of 55.7 ft bgs. Add a drive rod. Drive to a depth of 59 ft bgs. |
| ——— | ——— | Conduct Moisture logging at C6395 20 to 3.75 ft bgs and C6397 92.75 to 0.5 with a repeat from 47 to 65.76 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. Exit C Tank Farm. Cool down period for personnel. |

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

***REVIEWED BY:*** KD Reynolds
TITLE: ES FIELD PROJECT MANAGER DATE: 9-2-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER: 32** | **DATE:** 05/20-21/08 (Tuesday-Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: TUBING ADVANCEMENT DOWN DUE TO WIND. MOISTURE LOGGING @ C6395.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 59 ft bgs

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

***DOCUMENTED DOWNTIME:***
9 hrs – wind/rain

**WEATHER CONDITIONS** (373-2716)
Temperature 95 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 0.0 ft bgs |
| Drive tip depth (shift end) | 17.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 19.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:40 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Driving and backing. An equipment and site inspection was conducted. No deficiencies noted |
| ——— | ——— | A weekly Safety topic was discussed. The topic was Heat Stress. See attached information. |
| 08:40 | ——— | Tubing advancement is down due to wind and rain. |
| ——— | ——— | C6395: Moisture logging was conducted from 152 to 142 ft bgs. |
| ——— | ——— | Organize the horse trailer (onsite storage). |
| ——— | ——— | Locate sample caps for NCO's. |
| ——— | 15:30 | Secure site and equipment. Exit C Tank Farm. |
| ——— | ——— | NOTE: No field work is conducted 05/21/08. CH2 M Hill has a all employee safety meeting and Safety Expo. Personnel conduct site clean-up and attend the safety expo. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

# Preventing Heat Stress

Hot conditions put your body under a lot of stress. Physical activity stresses the body even more. When heat is combined with physical activity, loss of fluids, fatigue, and other conditions can lead to a number of heat-related illnesses and injuries. Death is even possible. This week's **Tail Gate Safety Topic** discusses ways to prevent heat stress and how to recognize the symptoms of a number of heat-stress conditions.

Heat stress is commonly associated with warm weather. It's true that warm weather increases the number of heat-stress injuries and illnesses. Warm weather isn't the only cause of heat stress, though. Heat stress can occur any time the surrounding temperature is elevated. Even if the weather is cool, you may work in warm areas, indoors or out. Be alert for conditions which could cause heat stress and take precautions to prevent it. Six main factors are involved in causing heat stress:

- temperature
- humidity
- movement of air
- radiant temperature of the surroundings
- clothing
- physical activity

Adjusting to these factors and/or controlling them reduce the chance of heat stress.

Your body can adjust to working in a warm environment through a process known as "acclimatization." Check with your company's safety people for the exact way to properly acclimatize yourself. Acclimatization processes involve gradually increasing the amount of time you spend working in a hot environment. This gradual increase allows your body to properly adjust to the heat.

Keep in mind, though, even if you're already acclimatized, conditions can change which stress your body even more. Bright sunshine, high humidity, and sources of heat in the workplace can affect your body's ability to cool itself. If conditions change, make sure you re-acclimate yourself to the new conditions. If you're away from work for a few days or if you experience a brief period of cooler temperatures while working, you will need to re-acclimate yourself before you try to work the full shift in the hot conditions.

Engineering controls can be implemented to reduce the possibility of heat stress. These include:

- control the heat source through use of insulation and reflective barriers
- exhaust hot air or steam away from the work area
- use of air-conditioning
- use of air-conditioned rest areas
- use of fans to circulate the air
- reduce the physical demands of the work by using mechanical equipment

Administrative controls are also effective to prevent heat stress injuries. These include:

- increase the frequency and duration of rest breaks
- schedule tasks to avoid heavy physical activity during the hottest parts of the day
- provide cool drinking water or an electrolyte-replacement drink and encourage its consumption
- use additional workers for the job or slow down the pace of the work
- make sure everyone understands the signs and symptoms of heat stress

Common-sense precautions, such as dressing properly for the job, include:

- wear lightweight clothing which allows moisture to evaporate quickly

There are a number of types of heat stress injuries. Some are annoying but not very serious. Others can quickly lead to life-threatening situations. Knowing what to look out for is important. This is especially true because the more serious heat stress conditions cause the victim to become disoriented and unaware of their condition. People who are overweight, physically unfit, suffer from heart conditions, drink too much alcohol or

are not acclimated to the temperature are at greater risk of heat stress and should seek and follow medical advice.

The major heat stress injuries and illnesses are described here:

**Heat Rash** is caused by a hot, humid environment and plugged sweat glands. It is a bumpy red rash which itches severely. It is not life-threatening but is very annoying. Dry clothes that help sweat evaporate will reduce the chance of heat rash. Washing regularly and keeping the skin clean and dry will help prevent heat rash.

**Heat Cramps** are painful muscle cramps caused by a loss of body salt through excessive sweating. To help prevent heat cramps, drink plenty of non-alcoholic, caffeine-free fluids while working in a hot environment. Check with your doctor about the use of salt tablets. They may be recommended in some cases. Anyone suffering from heat cramps should be watched carefully for signs of more serious heat stress. If the cramps persist or other symptoms develop, seek medical attention immediately.

**Heat Syncope** (pronounced "sin-co-pay") is sudden fainting caused by a reduced blood flow to the head. The victim's skin will be cool and moist and their pulse will be weak. Immediate medical attention is needed in the event of syncope.

**Heat Exhaustion** results from inadequate salt and water intake and is a sign the body's cooling system is not working properly. The victim will sweat heavily, their skin will be cool and moist, their pulse weak, and they will seem tired, confused, clumsy, irritable or upset, they may breathe rapidly--even pant--and their vision may be blurred. The victim may strongly argue that they are okay even with these obvious symptoms. If you suspect heat exhaustion, don't let the victim talk you out of seeking immediate medical attention. The heat exhaustion will affect their ability to exercise good judgment. Until medical help arrives, try to cool the victim and offer sips of cool water as long as the victim is conscious. Immediate medical attention is required. Heat exhaustion can quickly lead to heat stroke.

**Heat Stroke** is the deadliest of all heat stress conditions. It occurs when the body's cooling mechanism has shut down after extreme loss of salt and fluids. The body temperature will rise, the victim's skin is hot, red, and dry, their pulse fast, and they may complain of headache or dizziness. They will probably be weak, confused, and upset. Later stages of heat stroke cause a loss of consciousness and may lead to convulsions. In the event of heat stroke, seek immediate medical attention. Until help arrives, try to cool the victim and offer sips of cool water if the victim is conscious.

Recognizing the symptoms of heat stress is very important, particularly since the victim may not realize what is happening. If you work alone in a hot environment, develop a "buddy system" so someone will check in on you periodically to look for signs of heat stress.

Preventing heat stress is a matter of controlling the factors that cause it. If you work in a notoriously hot area, make sure your company has safety training related to Heat Stress. Use the precautions mentioned in this article, and don't hesitate to seek assistance if you suspect heat stress. your good health depends on it!

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 33 | **DATE:** 05/22/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: DRIVE FROM 59 TO A DEPTH OF 75 FT BGS OBTAINING ONE SAMPLE. MOISTURE LOGGING @ C6395.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 16 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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 59 to 75 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 93 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 59.0 ft bgs |
| Drive tip depth (shift end) | 75.0 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 77.0 ft |

**SAMPLE SUMMARY**

SAMPLE: B1VJ59 59 to 61 ft 100% recovery

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

| *TIME* FROM | *TIME* TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Wind Hazards.. An equipment and site inspection was conducted. No deficiencies noted |
| 08:30 | 11:20 | C6394: Drive a sample (B1VJ59) from 59 to 61 ft bgs. Recovery was 100%. The sample was packaged and transported to the laboratory. The sample was drove @ 11:00. |
| 11:20 | ——— | The head sub broke free, discussed options and utilized the head as is. |
| ——— | 12:00 | The inner string and solid tip was tripped to bottom and adjusted for driving. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:45 | Drive from 61 to a depth of 75 ft bgs. Add DWSS tubing. |
| ——— | ——— | C6395: Moisture logging from 146.75 to 37.5 with a repeat at 60 to 65 ft bgs. |
| 14:45 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER: 34** | **DATE:** 05/23/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: OBTAIN ONE SAMPLE AND CONDUCT MOISTURE AND GAMMA LOGGING @ C6395** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 75 to 77 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 75 F/rain

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 75 ft bgs |
| Drive tip depth (shift end) | 77 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 79 ft |

**SAMPLE SUMMARY**

SAMPLE: B1VJ60 75 to 77 ft 100% recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:36 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained MSDS's. An equipment and site inspection was conducted. No deficiencies noted |
| 08:36 | 09:20 | Trip inner tubing from the DWSS. Trip a sampler to depth and set-up for driving. |
| 09:20 | 10:34 | C6394: Drive a sample (B1VJ60) from 75 to 77 ft bgs. Recovery was 100%. The sample was packaged and transported to the laboratory. The sample was drove @ 10:00. |
| 10:34 | 11:04 | Lunch |
| 11:04 | 11:45 | The inner string and solid tip was tripped to bottom and adjusted for driving. |
| 11:45 | 13:55 | The spindle sub was re-set on the spindle. A new type of sub was used, o-dex type. |
| ——— | ——— | Conduct Moisture logging @ C6395 from 40.25 to 0 ft repeat from 23.25 to 26.75 ft bgs and Gamma Logging from 60 to 20 repeat 25 TO 27 ft bgs at C6395. |
| 13:55 | 14:30 | Secure site and equipment. Exit C Tank Farm. |
| ——— | ——— | NOTE: Monday (05/26/08) is an observed holiday (Memorial Day). |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 35 | **DATE:** 05/27/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: OBTAIN ONE SAMPLE AND CONDUCT GAMMA LOGGING @ C6395.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 77 to 97 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 75 F/rain

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 77 ft bgs |
| Drive tip depth (shift end) | 97 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 99 ft |

**SAMPLE SUMMARY**

SAMPLE: B1VJ61 95 to 97 ft 100% recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:36 | The Work Package is picked up by the NCO (Mr. Snook). Personnel Ace. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Defensive driving. An equipment and site inspection was conducted. No deficiencies noted |
| 08:36 | 09:00 | C6394: Drive from 77 to a depth of 79.8 ft bgs. Add a drive rod. Drive to a depth of 83.7 ft bgs. Add a drive rod. |
| 09:00 | 09:40 | Drive to a depth of 87.8 ft bgs. Add a drive rod. Drive to a depth of 91.8 ft bgs. Add a drive rod. |
| 09:40 | 10:10 | Drive to a depth of 95 ft bgs. Add a drive rod. Set up drive system. |
| 10:10 | 12:00 | Trip center tubing out of boring and trip sampler to bottom. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:40 | Drive a sample (B1VJ61) from 95 to 97 ft bgs. Recovery was 100%. The sample was packaged and transported to the laboratory. The sample was drove @ 13:30. Evaluate sample equipment. |
| 13:40 | 15:00 | The inner string and solid tip was tripped to bottom and adjusted for driving. |
| -------- | -------- | Conduct Gamma logging @ C6395 from 153 to55 ft and 25 to 0.5 ft bgs with a repeat from 20 to 25 ft bgs and 0.5 to 10 ft bgs. |
| 15:00 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6393/C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 36** | **DATE:** 05/28/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: DRIVE TO A DEPTH OF 133 FT AND GYRO SURVEY @ C6393 AND C6399.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 36 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 | 2.75 in OD | 1.0 ft | DWSS |

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

C6394 97 to 133 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 81 F/rain

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 97 ft bgs |
| Drive tip depth (shift end) | 133 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 135 ft |

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson

License no. 1217

S. Snook, I. Villareal (OP/CHG); P. Templeton, J. Clayton (HPT/CHG); D. Skoglie (ENERGY SOLUTIONS), B. Randall (NW Geophysics)

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:37 | The Work Package is picked up by the NCO (Mr. Snook). Personnel Ace. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Defensive driving. An equipment and site inspection was conducted. No deficiencies noted. |
| 08:37 | 09:10 | C6394: Drive from 97 to a depth of 100.7 ft bgs. Add a drive rod. Drive to a depth of 104.8 ft bgs. Add a drive rod. |
| 09:10 | 09:50 | Drive to a depth of 107.7 ft bgs. Add a drive rod. Drive to a depth of 111.8 ft bgs. Add a drive rod. |
| 09:50 | 10:35 | Drive to a depth of 115.7 ft bgs. Add a drive rod. Drive to a depth of 119.8 ft bgs. Add a drive rod. |
| 10:35 | 11:03 | Drive to a depth of 123.7 ft bgs. Add a drive rod. Drive to a depth of 127.8 ft bgs. Add a drive rod. |
| 11:03 | 11:45 | Drive to a depth of 131.8 ft bgs. Add a drive rod. Drive to a depth of 133 ft bgs. |
| 11:45 | 12:15 | Lunch |
| 12:15 | 13:20 | Trip out the inner string. |
| 13:20 | 14:45 | Trip the sampler to 100 ft bgs. |
| ——— | ——— | Conduct Gyro survey of bore-holes C6393 and C6399. |
| 14:45 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 37 | **DATE:** 05/29/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: SAMPLE AND DRIVE TO A DEPTH OF 152 FT** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 133 to 152 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 80 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 133 ft bgs |
| Drive tip depth (shift end) | 152 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 154 ft |

**SAMPLE SUMMARY**

Sample: B1VJ62 133 to 135 ft bgs 100% recovery.

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 09:20 | The Work Package is picked up by the NCO (Mr. Snook). Personnel Ace. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to biological hazards. A weekly safety topic was discussed: Rattlesnakes, an e-mail was sent out stating a den of rattlesnakes was found South of W. Richland (large den). In fact the information was from the Southwest. However, there have been rattlesnakes seen in city parks along the Columbia during recent high water stages. Look before you step. Dress and enter C tank Farm. An equipment and site inspection was conducted. No deficiencies noted. |
| 09:20 | 10:05 | Trip a sampler to a depth of 133 ft bgs. |
| 10:05 | 11:10 | C6394: Drive the sample @ 10:10 (133 to 135 ft) sample number B1VJ62. Trip the sample to surface. Package and transport the sample to the laboratory. 100% recovery. |
| 11:10 | 12:00 | Trip in the center tubing with solid drive tip. Set-up to drive the DWSS. Exit C Tank Farm. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:20 | Drive from 133 to a depth of 136.7 ft bgs. Add a drive rod. Drive to a depth of 140.8 ft bgs. Add a drive rod. |
| 13:20 | 14:14 | Drive to a depth of 144.7 ft bgs. Add a drive rod. Drive to a depth of 148.8 ft bgs. Add a drive rod. |
| 14:14 | 14:55 | Drive to a depth of 152 ft bgs. |
| 14:55 | 15:30 | Secure site and equipment. Exit C Tank Farm. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 38 | **DATE:** 06/02/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: DRIVE TO A DEPTH OF 168 FT AND SET-UP FOR SAMPLING.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 26E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 16 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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 152 to 168 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 85 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 152 ft bgs |
| Drive tip depth (shift end) | 168 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 170 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Personnel Ace. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to drinking fluids. Dress and enter C tank Farm. An equipment and site inspection was conducted. No deficiencies noted. Fuel the HHU (fuel cans). |
| 08:30 | 09:40 | C6394: Drive from 152 to a depth of 155.7 ft bgs. Add a drive rod. Drive to a depth of 159.8 ft bgs. Add a drive rod. |
| 09:40 | 11:10 | Drive to a depth of 163.8 ft bgs. Add a drive rod. Drive to a depth of 168 ft bgs. |
| 11:10 | 12:00 | Trip in the center tubing with solid drive tip. Set-up to drive the DWSS. Exit C Tank Farm. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:40 | Trip a sampler to a depth of 168 ft bgs. |
| 13:40 | 14:45 | Secure site and equipment. Exit C Tank Farm. |
| 14:45 | 15:30 | Clean-up and documentation. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kent D. Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 39 | **DATE:** 06/03/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WIND AND RAIN.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 168 ft bgs

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

***DOCUMENTED DOWNTIME:***
Wind and rain- 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 73 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 168 ft bgs |
| Drive tip depth (shift end) | 168 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 170 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to equipment loading, securement, and transportation. |
| 08:30 | ---------- | Down due to wind and rain. The C Tank Farm scope of work could not be performed. |
| ---------- | ---------- | Move equipment to staging area all day. |
| ---------- | 15:30 | Secure the site. |

***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: 06/03/08
SIGNATURE: D.E. Skoglie for K.D. Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER: 40** | **DATE:** 06/04/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WIND.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 168 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 71 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 168 ft bgs |
| Drive tip depth (shift end) | 168 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 170 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to pinching hazards. |
| 08:30 | ---------- | Down due to wind. The C Tank Farm scope of work could not be performed. |
| ---------- | ---------- | Move equipment to staging area all day. |
| ---------- | 15:30 | Secure the site. |

***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: 09/03/08
SIGNATURE: DE Skoglie for K.D. Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER: 41** | **DATE:** 06/05/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: SAMPLE 168 TO 170 FT BGS AND TRIP A SAMPLER TO BOTTOM.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 168 to 170 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 92 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 168 ft bgs |
| Drive tip depth (shift end) | 170 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 172 ft |

**SAMPLE SUMMARY**
Sample B1VJ63 168 to 170 100% Recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:45 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Personal Protective Equipment. A weekly safety meeting was held to discuss counterfeit bolts. If counterfeit bolts are found discard and replace with USA made bolts. Counterfeit bolts could create a safety hazard. Dress and enter C tank Farm. An equipment and site inspection was conducted. No deficiencies noted. |
| 08:45 | 12:00 | C6394: Drive the sample @ 09:30 (168 to 170 ft) sample number B1VJ63. Trip the sample to surface. Package and transport the sample to the laboratory. 100% recovery. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Trip a sampler to a depth of 170 ft bgs. |
| 13:30 | 14:00 | Secure site and equipment. Exit C Tank Farm. |
| 14:00 | 15:30 | Clean-up and documentation. Move equipment to staging area. |

***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: 9-2-08
SIGNATURE: Kent D. Reynolds

ENERGYSOLUTIONS

**Energy Solutions Inc. Western Operations**

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

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER: 42** | **DATE:** 06/06/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO NO NCO (SAMPLER) SUPPORT** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 170 ft bgs

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

***DOCUMENTED DOWNTIME:***
NCO - 8 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 82 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 170 ft bgs |
| Drive tip depth (shift end) | 170 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 172 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Keeping your mind in the Game. Dress and enter C tank Farm. A site inspection was conducted. No deficiencies noted. |
| 08:30 | ———— | Down due to no NCO (sampler) support. The C Tank Farm scope of work could not be performed. |
| ———— | ———— | Move equipment to staging area all day. |
| ———— | 14:30 | Secure the site. |

***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: 9-2-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 43** | **DATE:** 06/09/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6394: SAMPLE 170 TO 172 FT BGS AND MOVE EQUIPMENT TO C6397** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **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 | 2.75 in OD | 1.0 ft | DWSS |

**BORING DEPTH**
*(include sampling depth)*
C6394 170 to 172 ft bgs

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

***DOCUMENTED DOWNTIME:***
Wind – 3 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 84 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 170 ft bgs |
| Drive tip depth (shift end) | 172 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 174 ft |

**SAMPLE SUMMARY**
Sample B1VJ64 170 to 172 100% Recovery

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:45 | The Work Package is picked up by the NCO (Mr. Snook). Personnel ACE. Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Hearing Protection. A weekly safety discussion talked about Radiation exposure in the workplace (see attached information). Dress and enter C tank Farm. An equipment and site inspection was conducted. No deficiencies noted. |
| 08:45 | 12:00 | C6394: Drive the sample @ 10:10 hrs (170 to 172 ft) sample number B1VJ64. Trip the sample to surface. Package and transport the sample to the laboratory. 100% recovery. |
| | | Move and set-up HHU and support equipment on C6397. Decommissioning will be conducted at this location. |
| 12:00 | 12:30 | Lunch |
| 12:30 | ---------- | The wind has come up above limits and therefore back-pulling operations cannot be conducted. |
| ---------- | 15:00 | Ready decommissioning equipment. |
| 15:00 | 15:30 | Secure the site. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

## Radiation in the Workplace

You are probably familiar with a few uses of radiation, like x-rays and nuclear power. But did you know there are lots of ways radiation is used in the workplace? Radiation is used to sterilize health products, to treat cancer and other diseases, to measure the moisture content of soil at construction sites, to locate leaks in pipelines and defects in welds, to make fluorescent bulbs last longer, to make lightning rods work better--the list goes on and on. Radiation is a tool that is used for great benefit to our society. But radiation can be harmful if it isn't controlled. Do you know the hazards of radiation and how to protect against them

Many people think radiation is some type of chemical or gas. It isn't. Although some chemicals or gases may be "radioactive"--they emit radiation--radiation itself is simply energy. There are many types of radiation. Some types of energy can be seen or felt, such as visible light and infrared radiation. Some types cannot be detected without special equipment. The type of radiation we will discuss is known as "ionizing" radiation. Ionizing radiation cannot be seen or felt. It must be detected with special equipment. Ionizing radiation, unlike infrared, microwave, lasers, and most ultraviolet radiation, is energetic enough to remove electrons from their orbit about the nucleus of an atom. Ionization changes the atom. If the atom is part of a living cell, those changes could cause a health effect.

You are probably familiar with x-ray radiation. X-rays pass through objects and expose film. Dense areas absorb the x-rays so they appear lighter on film than non-dense areas which allow the radiation to pass through. This is why x-ray radiation is useful in many applications, from medicine to security to radiography of welds and other critical structures. X-rays are ionizing radiation. Gamma radiation is similar to x-ray radiation. The other types of ionizing radiation are actually small, energetic particles known as alpha and beta particles. Another type of particle radiation is the neutron. All these types of radiation can cause change to the body's cells.

In order for radiation to affect the body, a person must be exposed to it. Radiation exposure may occur from radiation sources located outside the body, known as "external exposure," or it may occur from sources of radiation located inside the body, known as "internal exposure." Internal exposure results from the inhalation, ingestion, or other uptake of radioactive material by the body. Radioactive material is material which emits radiation, such as radioactive uranium, radium, cobalt, and thorium.

Health effects of radiation exposure have been studied for years. It is very clear that at high levels of exposure, serious health effects occur. These health effects are destruction of bone marrow, incapacitation of the digestive and nervous systems, birth defects in children born to exposed mothers, and increased incidence of cancer in exposed populations. A localized exposure could result in the loss of a hand or foot. These effects are clearly evident at high exposures such as those produced by an atomic bomb detonation or serious accident involving radioactive materials. However, these exposures are much, much larger than those encountered in the workplace. In fact, the health effects

of low exposures, such as those received in the workplace, aren't as obvious as those from high exposures. They're really not obvious at all.

Radiation exposure at the occupational level does not cause obvious bone marrow damage or digestive or nervous system effects. It has not been shown to cause cancer or birth defects. Localized low exposures to the hands and feet, and arms and legs do not cause obvious harm. To be on the safe side, information from persons exposed to high levels of radiation has been used to predict possible health effects to persons exposed to low levels. Since high exposures cause a significant increase in the incidence of cancer, low-level exposure may cause a small increase in the risk of cancer. To minimize this risk, occupational radiation exposures are limited to very low levels.

Companies and other institutions that use radiation are regulated by the Nuclear Regulatory Commission, the Department of Energy, or their state radiological control agency. Persons who work with radiation must be trained in radiation risks and radiation safety practices. They are taught to minimize their exposure by using these techniques:

**Time**--Decrease the amount of time spent near a radiation source.

**Distance**--Increase distance between yourself and a radiation source.

**Shielding**--Use appropriate shielding to reduce radiation exposure.

Depending on the type of radiation used, other specific safety rules apply. For example, persons who work with radiography sources must wear an alarming radiation measurement device to warn them when the radiation level exceeds a certain level. They must also never, ever assume the radiation source is shielded without checking it with a radiation detector--at a safe distance from the source. Some of the highest accidental radiation exposures (well in excess of regulatory limits) have occurred in the radiography industry. These accidents have caused serious local injuries and have even been fatal.

Persons with a potential for internal exposure are also taught to use respirators or other protective equipment to minimize their uptake of radioactive material. Some other techniques for minimizing potential internal exposure are:

**No eating, drinking, smoking, or cosmetic application** in areas where radioactive materials are used.

**Check the work area frequently** for "contamination"--radioactive material which has spilled into the work area--and clean it up immediately.

**Use gloves, respirators, and other protective equipment** as required. Use it consistently and don't take shortcuts.

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 44** | **DATE:** 06/10/08 (Tuesday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: DOWN DUE TO WIND.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 | |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C6397 152 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 82 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 152 ft bgs |
| Drive tip depth (shift end) | 152 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 154 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:40 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Pumping Fuel. A site inspection was conducted. No deficiencies noted. |
| 08:40 | ———— | Down due to wind. The C Tank Farm scope of work could not be performed. |
| ———— | 15:00 | Move equipment to staging area all day. |
| 15:00 | 15:30 | Secure the site. |

***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: 9-2-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 45** | **DATE:** 06/11/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WIND.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2<br>C6397 152 6E |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C6397 152 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 92 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 152 ft bgs |
| Drive tip depth (shift end) | 152 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 154 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:40 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Yard Work. A site inspection was conducted. No deficiencies noted. |
| 08:40 | ———— | Down due to wind. The C Tank Farm scope of work could not be performed. |
| ———— | 15:00 | Move equipment to staging area all day. |
| 15:00 | 15:30 | Secure the site. |

***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: 9-2-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6397 | **WELL NUMBER:** N/A | **REPORT NUMBER: 46** | **DATE:** 06/12/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit (HHU#1) CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: ELECTRICAL INSPECTION, FIRST AID AND DECOMMISSIONING.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 50 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)*
C6397 152 to 102 ft bgs

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

***DOCUMENTED DOWNTIME:***
Electrical Inspection – 2 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 89 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 152 ft bgs |
| Drive tip depth (shift end) | 102 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 104 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to equipment Spotters. A site inspection was conducted. No deficiencies noted. |
| 08:30 | 10:30 | Down due to electrical cord inspection. The electricians also repair lights on the support trailer. |
| 10:30 | 12:00 | Mr. Repko goes to the First Aid building for a sliver he had obtained at home. Treated and released. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:45 | C6397: Back-pull tubing from 152 to 102 and decommission with 3.1 sacks bentonite. |
| 14:45 | 15:00 | Unload equipment at lay-down yard. |
| 15:00 | 15:30 | Secure the site. |

***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: 9-2-08
SIGNATURE: Kent D. Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6397/C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 47** | **DATE:** 06/16/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6397 DECOMMISSION TO SURFACE, MOVE AND SET-UP ON C6399 AND ATTEMPT TO KNOCK-OUT TIP.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 112 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)*

C6397 102 to surface

C6399 242 to 232 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 93 F

**CASING SUMMARY**

| | | |
|---|---|---|
| Drive tip depth (shift start) | C6397 102 ft bgs | C6399 242 ft bgs |
| Drive tip depth (shift end) | 0 ft bgs | 232 ft bgs |
| Casing stick up (shift end) | N/A | 2 ft |
| Drive String Length | N/A | 234 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:35 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to eye protection. A site inspection was conducted. No deficiencies noted. |
| 08:35 | 12:00 | Decommission C6397 from 102 ft bgs to surface. 5.5 sacks bentonite crumbles were used. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Move the HHU and support equipment to C6399. |
| 13:30 | 14:10 | The tubing was back-pulled 10 ft (232 ft bgs). |
| 14:10 | 14:30 | An attempt was made to remove the drive tip without success. A heavier knocker bar will be used tomorrow. |
| 14:30 | 15:30 | Secure the site and equipment and exit C Tank Farm. A heavy knocker bar was located and staged for use tomorrow. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 48** | **DATE:** 06/17/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399 ATTEMPT TO KNOCK-OUT TIP WITH A HEAVIER KNOCKER BAR, LOCATE AND TRANSPORT A FISHING STRING FOR KNOCKING OUT THE DRIVE POINT.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6399 232 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 94 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 232 ft bgs |
| Drive tip depth (shift end) | 232 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 234 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:40 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to procedure compliance. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:40 | 10:10 | Decommissioning at C6399. The heavy knocker bar was used without success. |
| 10:10 | 12:00 | The fishing string was transported to the work location. Exit the C Tank Farm. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | The fishing string was transported into the C Tank Farm. |
| 13:30 | 14:30 | 60 ft of the fishing string was tripped into the boring. |
| 14:30 | 15:30 | Secure the site and equipment and exit C Tank Farm. |

***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: 9-2-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 49 | **DATE:** 06/18/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: TRIP THE FISHING STRING TO BOTTOM AND KNOCK OUT THE DRIVE POINT. LOTO TRAINING (PM).** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C6399 232 ft bgs

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

***DOCUMENTED DOWNTIME:***
LOTO training and Monthly Safety meeting 4.0 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 92 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 232 ft bgs |
| Drive tip depth (shift end) | 232 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 234 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | *TIME* TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:40 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to substantial footwear. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:40 | ——— | Decommissioning at C6399. |
| ——— | 09:55 | The fishing string was tripped to bottom and used to knock out the drive point. |
| 09:55 | 10:45 | 100 ft of the fishing string was removed from the boring. |
| 10:45 | 11:00 | Secure the site and equipment and exit C Tank Farm. |
| 11:00 | 11:30 | Lunch |
| 11:30 | 12:00 | Travel to LOTO training at the PNNL auditorium. |
| 12:00 | 15:30 | Attend LOTO training and FH monthly safety meeting. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 50** | **DATE:** 06/19/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: TRIP THE FISHING STRING FROM THE BORE-HOLE AND INITIATE DECOMMISSIONING AND MOISTURE PROBE PLACEMENT.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 26 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)*

C6399 232 to 206 ft bgs

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

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Stop Work – 2 hrs.

**WEATHER CONDITIONS** (373-2716)
Temperature 94 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 232 ft bgs |
| Drive tip depth (shift end) | 206 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 208 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:45 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to candles and fires. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:45 | ——— | Decommission and probe installation at C6399. |
| ——— | 10:30 | The fishing string was tripped out of the boring. Drive the drive tip down with knocker bar. |
| 10:30 | 11:15 | Back-pull tubing to a depth of 215 placing sand to 215 ft bgs. |
| 11:15 | 11:40 | Place a moisture probe at 215 ft bgs. |
| 11:40 | 12:00 | Add sand and saline solution at a depth of 210 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:30 | Dress and enter C Tank Farm. Add sand and back-pull tubing to a depth of 206 ft bgs. |
| 13:30 | ——— | A Stop Work was issued by CH2M HILL due to a crane incident. A Cranes strap hooked a riser and bent the casing. |
| ——— | 15:30 | Secure the site and discuss daily operations. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglic<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: David E. Skoglic | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 51** | **DATE:** 06/20/08 (Friday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: CONDUCT DECOMMISSIONING.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 42 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)*

C6399 206 to 164 ft bgs

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

**TOTAL TIME:** 8 Hrs.

***DOCUMENTED DOWNTIME:***
CH2M Hill – 3.5 hrs Safety meeting/Lunch

**WEATHER CONDITIONS** (373-2716)
Temperature 88 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 206 ft bgs |
| Drive tip depth (shift end) | 164 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 166 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | *TIME* TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:45 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Horse-play. A weekly safety meeting was conducted regarding personal fall arrest and fall restraint systems (see attached information). A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:45 | ———— | Decommissioning at borehole C6399. |
| ———— | 11:15 | Back-pull tubing to a depth of 164 placing sand to 166 ft bgs. |
| 11:15 | 12:00 | Secure the site and equipment. Exit C Tank Farm. |
| 12:00 | 13:00 | Lunch A CH2M Hill sponsored lunch was held for a safety award. |
| 13:00 | 14:30 | Discuss and evaluate equipment required to complete project. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

## PERSONAL FALL ARREST AND FALL RESTRAINT SYSTEMS

It is important for you to understand the difference between a fall **arrest** system and fall **restraint** system. These are most commonly used in the construction industry, but may apply to many other situations where employees must work at heights.

**FALL RESTRAINT:** A fall restraint system consists of the equipment used to keep an employee from *reaching a fall point,* such as the edge of a roof or the edge of an elevated working surface. The most commonly utilized fall restraint system is a standard guardrail. A tie off system that "restrains" the employee from falling off an elevated working surface is another type of fall restraint.

**FALL ARREST:** According to the definition in the Federal OSHA standard, a personal fall arrest system means a system used to *arrest* an employee in a fall from a working level. It consists of an anchor point, connectors, or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. The entire system must be capable of withstanding the tremendous impact forces involved in *stopping* or arresting the fall. The forces increase with the fall distance due to acceleration (a person without protection will free fall 4 feet in 1/2 second and 16 feet in 1 second!).

Let's review 5 key requirements for fall **arrest systems:**

Body belts may not be used after 12/31/97, except for positioning purposes only.

The system must be rigged so that an employee can neither free-fall more than 6 feet nor contact a lower level. After the free-fall distance, the deceleration or shock absorbing component of the system must bring an employee to a complete stop within 3.5 additional feet.

The anchorage point must be capable of supporting at least 5000 pounds per employee. Most standard guardrail systems are not adequate anchorage points because they are not built to withstand the impact forces generated by a fall.

The system's D-ring attachment point for body harnesses shall be in the center of the employee's back near the shoulder level.

The system components must be inspected for damage and deterioration prior to each use. All components subjected to the impact loading forces of a free-fall must be immediately removed from service.

## Do You Need To Travel With a Load?

It is well known that vehicle accidents result in many occupational fatalities. Vehicle inspection and maintenance are important elements to a comprehensive fleet safety program. Another subject that deserves attention has to do with the cargo you are hauling.

When traveling with loads, part of the pre-trip vehicle inspection process should include a thorough check to determine whether your load is adequately secured. An unsecured load may shift during your trip and could cause or contribute to an accident. Check the condition of tie downs and ropes to assure they are not damaged or excessively worn. If an internal rack system is used, check the anchorage points periodically to ensure they are sound. Check all doors to be sure they are closed.

Check the load to make certain it is packed tightly. Loose loads could shift and cause difficulty with steering and braking. If a load shift occurs while the vehicle is turning a corner, a rollover could occur. It is also important for the load to be well centered on your vehicle. A poorly centered load could also cause problems during normal vehicle operation. If the load is composed of items of unequal weight, a good practice is to keep the heaviest items toward the center of the total load.

Here are a few additional items to consider when traveling with a load:

- What is the weight of the load and are you sure it does not exceed the vehicle's capacity?

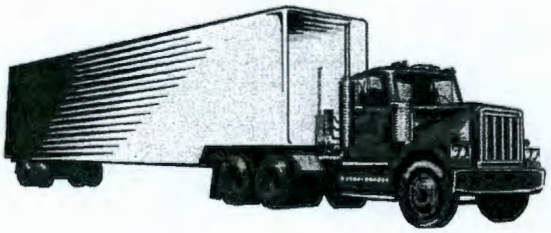
- Will the load height be an issue? Are there any low clearance underpasses on your planned route?

- Does your load extend beyond the back of your vehicle? Do you need a warning flag?

- If your load is in an open top truck, have you covered the top with a canvas or tarp to assure that the load will not fly out of the back?

- Do you know your route? Are there any steep hills or sharp corners that could present dangerous situations because of your load?

When traveling with a load, make sure to address all load safety issues in order to assure that **YOU** and your load arrive safely at your destination.



ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER: 52** | **DATE:** 06/23/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 141791<br>SUBCONTRACT NUMBER C31672<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: CONDUCT DECOMMISSIONING.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2<br>C6397 152 6E |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 90 ft**

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | | TYPE CASING | DRIVE POINT DIMENSION | BOTTOM ASSEMB | TYPE |
|---|---|---|---|---|---|
| 2.6 in OD | N/A | CS | 2.6 in OD | 1.0 ft | DWSS |

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

C6399 164 to 74 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 88 F

**CASING SUMMARY**

| | |
|---|---|
| Casing depth (shift start) | 164 ft bgs |
| Casing depth (shift end) | 72 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 74 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | |
|---|---|---|
| 06:00 | 08:45 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to a recent motorcycle accident. Personnel ACE. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:45 | ---------- | Decommission and probe installation at C6399. |
| ---------- | 10:30 | Back-pull tubing from 164 ft bgs to a depth of 126 placing bentonite crumbles to 128 ft bgs. Take a break. |
| 10:30 | 12:00 | Back-pull tubing from 126 ft bgs to a depth of 86 placing bentonite crumbles to 88 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 14:20 | Back-pull tubing from 86 ft bgs to a depth of 72 placing bentonite crumbles to 73 ft bgs. |
| 14:20 | 15:00 | Set-up probe for 50 ft interval installation. |
| 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: 9-2-08
SIGNATURE: Kurt D. Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 53 | **DATE:** 06/24/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: CONDUCT DECOMMISSIONING. NO C TANK FARM WORK DUE TO WIND.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(include sampling depth)*
C6399 74 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 84 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 72 ft bgs |
| Drive tip depth (shift end) | 72 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 74 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Emergency Notifications. A weekly safety topic on secured loads (see attached information). A site inspection was conducted. No deficiencies noted. |
| 08:30 | ——— | Due to wind no C Tank Farm work was conducted. |
| ——— | ——— | House keeping was conducted. |
| ——— | 15:30 | Secure the site. |

***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: 9-2-08
SIGNATURE: [signature]

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6399/C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER: 54** | **DATE:** 06/25/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6399: CONDUCT DECOMMISSIONING AND MOISTURE PROBE INSTALLATION. SET-UP ON C6395 AND INITIATE DECOMMISSIONING.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6399 74 to 0 ft bgs

C6395 152 – 148 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 88 F

**CASING SUMMARY**

| | | |
|---|---|---|
| Drive tip depth (shift start) | C6399 72 ft bgs | C6395 152 ft bgs |
| Drive tip depth (shift end) | 0 ft bgs | 148 ft bgs |
| Casing stick up (shift end) | 0 ft | 2.0 ft |
| Drive String Length | 0 ft | 150 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to serrated abrasions. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:30 | ---------- | Decommission and probe installation at C6399. |
| ---------- | 10:30 | Back-pull tubing from 72 ft bgs to a depth of 39 ft bgs placing bentonite crumbles to 53 ft bgs. |
| 10:30 | 10:50 | Place sand to a depth of 51 ft bgs. |
| 10:50 | 11:30 | Install a moisture probe at 50 ft bgs. Place sand to a depth of 43 ft bgs. |
| 11:30 | 12:00 | Place the saline solution (4 gallons). |
| 12:00 | 12:30 | Lunch |
| 12:30 | 13:55 | Back-pull tubing from 39 ft bgs to surface placing bentonite crumbles to 1 ft bgs. |
| 13:55 | 14:30 | Move the HHU and support equipment and set-up on boring C6395. |
| 14:30 | 15:00 | Back-pull tubing from 152 to 148 ft bgs. Knock out the tip. |
| 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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 55 | **DATE:** 06/26/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6395: CONDUCT DECOMMISSIONING.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

**BORING DEPTH**
*(Include sampling depth)*
C6395 148 to 72 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 93 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 148 ft bgs |
| Drive tip depth (shift end) | 72 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 74 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to home repairs. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:30 | ——— | Decommission and probe installation at C6395. |
| ——— | 10:25 | Back-pull tubing from 148 ft bgs to a depth of 138 ft bgs placing sand to 147 ft bgs. |
| 10:25 | 11:00 | Place a moisture probe @ 146 ft bgs. Add sand to a depth of 139 ft bgs. Add saline solution (4 gal). |
| 11:00 | 12:00 | Back-pull tubing from 138 ft bgs to 100 ft bgs placing bentonite crumbles. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Back-pull tubing from 100 ft bgs to 72 ft bgs placing bentonite crumbles. |
| 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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6395 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 56 | **DATE:** 06/30/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: C6395: CONDUCT DECOMMISSIONING AND INITIATE PROBE INSTALLATION @ 50 FT BGS.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6395 72 to 42 ft bgs

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

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
WBGT – 3.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 104 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | 72 ft bgs |
| Drive tip depth (shift end) | 42 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 44 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to horse play at work. Personel ACE. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:30 | ---------- | Decommission and probe installation at C6395. |
| ---------- | 09:45 | Back-pull tubing from 72 ft bgs to a depth of 42 ft bgs placing bentonite crumbles to 53 ft bgs. |
| 09:45 | 10:30 | Place sand to a depth of 51 ft bgs. Set a moisture probe at 50 ft bgs. |
| 10:30 | ---------- | Place sand to a depth of 43 ft bgs. Place saline solution (4 gallons). |
| ---------- | 11:00 | NOTE: WBGT @ 10 AM is 50/50. WBGT @ 10:30 AM is 75/25. |
| 11:00 | 11:30 | Lunch |
| 11:30 | 15:00 | Due to WBGT C Tank Farm work was shut down. Picked up bentonite and made tags for moisture probe installations. |
| 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: 9-2-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6395/C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 57** | **DATE:** 07/01/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: COMPLETE DECOMMISSIONING ON C6395 AND INITIATE DECOMMISSIONING @ C6393.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 52 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)*

C6395 42 to 0 ft bgs

C6393 242 to 232 ft bgs

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

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Wind/WBGT – 2.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 95 F

**CASING SUMMARY**

| | | |
|---|---|---|
| Drive tip depth (shift start) | C6395 42 ft bgs; | C6393 242 ft bgs |
| Drive tip depth (shift end) | 0 ft bgs | 232 ft bgs |
| Casing stick up (shift end) | 0 ft | 2.0 ft |
| Drive String Length | 0 ft | 234.0 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to cell phone use, driving and new laws. A weekly safety meeting was discussed related to carbon monoxide (see attached information). A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:30 | 10:34 | C6395: Back-pull tubing from 42 ft bgs to a depth of 1 ft bgs placing bentonite crumbles. |
| 10:34 | 11:20 | Move and set-up the HHU and support equipment on C6393. |
| 11:20 | ———— | Back-pull tubing from 242 ft bgs to a depth of 232 ft bgs. |
| ---------- | 12:30 | The tubing is radiologically contaminated and therefore is sleeved and stored. |
| 12:30 | 13:00 | Lunch |
| 13:00 | | Due to WBGT and wind C Tank Farm work was shut down. Clean-up and sleeving ready for use. |
| 15:00 | 15:30 | Secure site and equipment. |

| | |
|---|---|
| ***REPORT BY:*** DE Skoglie<br>TITLE : ES SITE TECHNICAL AND SAFETY REPRESENTATIVE<br>SIGNATURE: Daird E. Skoglie | ***REVIEWED BY:*** KD Reynolds<br>TITLE: ES FIELD PROJECT MANAGER DATE: 9-2-08<br>SIGNATURE: Kurt D. Reynolds |

MAIN MENU

- Home
- Toolbox Talks
- Safety Files
- Safety News
- Polls
- Web Links
- Search
- Privacy Policy
- Contact Us

POLLS

**How Do You Measure Safety Performance?**

- Recordable Case Rate
- Lost Time Accidents
- Worker's Compensation Costs
- Severity Rate
- Other

Vote Results

**Do You Track Near Misses?**

- No
- Yes - But we don't get many reported
- Yes - And we get many reported

Vote Results

SAFETY HEADLINES

**Safety Commissioner concludes inquiry into train accident (Deepika)**
Hyderabad, Aug 4 (UNI) Chief Commissioner of Railway Safety RP Agarwal today concluded a two-day statutory-inquiry into the fire accident in Goutami express

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LATEST TOOLBOX TALKS

- Forklift Near Misses
- Not Reporting Near Misses
- Near Misses
- Lightning Claims 5 Young Lives This Week
- Vacation Safety - Boating

HIGHEST RATED TOOLBOX TALKS (VOTES)

- Carbon Monoxide Story (2)
- Grill Safety (1)
- Wake Up Call (1)
- Shortcuts Part 2 (2)
- Give Yourself a Hand (1)

Home • Toolbox Talks • Seasonal • Carbon Monoxide Story

## Carbon Monoxide Story

User Rating: / 2

Poor Best Rate

Winter is starting to approach. Soon it will be time to start up your furnace. Along with that comes a dramatic increase in calls to local Fire Departments regarding Carbon Monoxide (CO). This story is from one of our employees and is 2 years old now, but still worth reading and the reminder:

*Last Thursday evening about 9:30 p.m. Sara and I are sitting downstairs watching CSI. The three boys are upstairs in bed. Suddenly we hear this loud chirping sound coming from upstairs. Smoke detector? No, the sound wasn't right. Well the boys came charging down as I'm on my way up to see what it is. I discovered at the top of the stairs it was our Carbon Monoxide (CO) detector going off.*

*Hmm, that has never happened before.*

*It's reading 130 on the display and I think it's just gone nuts. I unplug it and bring it downstairs and plug it into the kitchen. Well, soon enough it's reading 117 downstairs. I'm again thinking it's just an older unit that has gone wild. But what the heck let me call someone and get another opinion.*

*I decided to call the administrative line to the Fire Department (no way I was going to call 911 over a bum detector) and an officer picks up the phone. I explain the situation to him and ask him if 130 is normal? He says, no sir, get out of the house and we'll be right over.*

*So we get on our shoes and coats and head out the door. We put the kids with some blankets into the car parked out in the driveway so they can be warm. Soon enough a police officer comes (no siren thank goodness) and then the Fire Engine. I explain the situation to the fire fighters and they grab a portable CO meter from their truck. I escort two of them into the house. We got about 3 ft. in the door and their meter display turned red and the fire fighter loudly said, OK, everyone back out now.*

*Course, now I'm thinking, **Oh My.***

*They proceed to put on their oxygen tanks and masks and head back into the house. They called more trucks to the house because they are required to have more people there in case the guys entering the house have to be rescued themselves.*

train between Kesamudram and Tadlapusalapalli stations in Warangal district, which claimed 31 lives on August 1.

*They were in there for about 15 minutes and took readings throughout the house. In the 15 minutes it took, the levels had escalated from 130 ppm upstairs to 288 ppm of CO. They believe the source was the gas furnace or hot water heater according to the readings and shut down both down. They opened up all the windows in the house and it took about 40 minutes for the CO levels to get back to where it needed to be to go back in. Well, we decided to hit a hotel for that night.*

*The bottom line is this. We had a CO detector and it worked. Had we not had that detector and gone to bed that evening then my entire family and I would heve died in our beds overnight from the CO. CO is odorless, tasteless, and lighter than air and kills hundreds if not thousands each year. The master bedroom had the highest readings.*

*If you don't have a CO detector in your home and you have natural gas or propane burning appliance (dryers, furnace, stove, oven, hot water heater, etc) please get one. Not tomorrow, but right now. Most stores like Meijer, Target, Wal-Mart all sell them.*

***The presence of a CO detector in our house saved my family's life. Make sure it has an opportunity to save yours.***

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ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 58** | **DATE:** 07/02/08 (Wednsday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: DOWN DUE TO WORK PACKAGE, BATTERY AND WBGT.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6393 232 ft bgs

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

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
Work package/battery – 9 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 98 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | C6393 232 ft bgs |
| Drive tip depth (shift end) | 232 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 234.0 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to PPE, specifically paper coveralls. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:30 | 10:30 | Standby for work package review regarding heat stress procedures. |
| 10:30 | ---------- | NOTE: Carpenters on location to repair roof on trailer. |
| ---------- | 11:30 | Dress into C Tank Farm. The HHU battery is dead. Remove and survey out battery. |
| 11:30 | 12:00 | Lunch |
| 12:00 | ---------- | Down for mechanical (battery) and heat conditions (WBGT). |
| ---------- | 15:00 | Pick-up a new battery and hauled materials from the Green hut. |
| 15:00 | 15:30 | Secured site. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt R. [illegible] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 59 | **DATE:** 07/03/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONTINUE DECOMMISSIONING @ C6393.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6393 232 to 208 ft bgs

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

**TOTAL TIME:** 9 Hrs.

***DOCUMENTED DOWNTIME:***
WBGT – 2.5 hrs

**WEATHER CONDITIONS** (373-2716)
Temperature 103 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | C6393 232 ft bgs |
| Drive tip depth (shift end) | 208 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 210.0 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to man-baskets. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:30 | 09:15 | Replace the battery in the HHU. Checked for draw on electrical. |
| 09:15 | 09:32 | C6393: Knock out the drive tip with weight bar. |
| 09:32 | 10:40 | Back-pull tubing from 232 ft bgs to a depth of 216 ft bgs placing bentonite crumbles to a depth of 218 ft bgs.. Tubing is sleeved due to radiological contamination (2k cpm). |
| 10:40 | 11:00 | Exit C Tank Farm due to WBGT (75/25). Rest and cool off. |
| 11:00 | 12:00 | Back-pull tubing from 216 ft bgs to a depth of 208 ft bgs placing bentonite crumbles to a depth of 210 ft bgs. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Due to WBGT C Tank Farm work was shut down. Change oil in F-150 and conduct clean-up. |
| 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: 9-2-08
SIGNATURE: Kurt Reynolds

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393 | **WELL NUMBER:** N/A | **REPORT NUMBER: 60** | **DATE:** 07/07/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING @ C6393.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 186 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)*

C6393 208 to 22 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 94 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | C6393 208 ft bgs |
| Drive tip depth (shift end) | 22 ft bgs |
| Casing stick up (shift end) | 2.0 ft |
| Drive String Length | 24.0 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to ladder safety and inspections. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:20 | 10:15 | C6393: Back-pull tubing from 208 ft bgs to a depth of 184 ft bgs placing bentonite crumbles to a depth of 206 ft bgs.. Tubing is sleeved due to radiological contamination (1k cpm). |
| 10:15 | 12:00 | Break WBGT is at 72.1 F. The word from Mr. Sydnor is to drive tubing down. Discuss abandonment operations. |
| 12:00 | 12:30 | Lunch NOTE: Carpenters place roofing material on geologist trailer. |
| 12:30 | 13:40 | Tubing was used to push the top of the contaminated tubing to a depth of 22 ft bgs. This tubing will also be used for a tremie for adding decommissioning materials. |
| 13:40 | 14:15 | Fill with bentonite to a depth of 22 ft bgs. |
| 14:15 | 15:15 | Trip remaining tubing from the boring. |
| 15:15 | 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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** C6393/C6394 | **WELL NUMBER:** N/A | **REPORT NUMBER: 61** | **DATE:** 07/08/08 (Tuesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING @ C6393 AND C6394.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 102 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 |
| 2.6 in OD | | | 2.75 in OD | 1.0 ft | DWSS |

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

C6393 22 to 0 ft bgs

C6394 152 to 72 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 94 F

**CASING SUMMARY**

| | | | | |
|---|---|---|---|---|
| Drive tip depth (shift start) | C6393 | 22 ft bgs | C6394 | 152 ft bgs |
| Drive tip depth (shift end) | | 0 ft bgs | | 72 ft bgs |
| Casing stick up (shift end) | | N/A | | 2 ft |
| Drive String Length | | N/A | | 74 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Tripping hazards. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:30 | 09:00 | C6393: Water was used as a dust suppressant (2 gallons was poured into the boring). |
| 09:00 | 09:30 | Bentonite crumbles were added to surface. |
| 09:30 | 09:50 | The HHU and support equipment was moved and set-up on C6394. |
| 09:50 | 10:45 | Tubing was back-pulled from 152 ft to a depth of 142 ft bgs. Bentonite crumbles were placed to a depth of 144 ft bgs as the tubing was withdrawn. No radiological contamination was noted. |
| 10:45 | 11:10 | Break |
| 11:10 | 12:00 | Tubing was back-pulled to a depth of 112 ft bgs. Bentonite crumbles were placed to a depth of 110 ft bgs as the tubing was withdrawn. No radiological contamination was noted. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Tubing was back-pulled to a depth of 72 ft bgs. Bentonite crumbles were placed to a depth of 73 ft bgs as the tubing was withdrawn. WBGT is at 78.2 F @ 13:25 hrs. |
| 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: 9-2-08<br>SIGNATURE: [signature] |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6394/C6391 | **WELL NUMBER:** N/A | **REPORT NUMBER: 62** | **DATE:** 07/09/08 (Wednesday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING @ C6394 AND C6391.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 100 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 | 2.75 in OD | 1.0 ft | DWSS |
| 2.5 in OD | | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6394 72 to 0 ft bgs

C6391 152 to 124 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 92 F

**CASING SUMMARY**

| | | |
|---|---|---|
| Drive tip depth (shift start) | C6394 72 ft bgs | C6391 152 ft bgs |
| Drive tip depth (shift end) | 0 ft bgs | 124 ft bgs |
| Casing stick up (shift end) | N/A | 2 ft |
| Drive String Length | N/A | 126 ft |

**SAMPLE SUMMARY**
N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:43 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Hot weather persists.. A site inspection was conducted. No deficiencies noted. Dress and enter C Tank Farm. |
| 08:43 | 11:00 | C6394: Tubing was back-pulled from 72 ft to surface. Bentonite crumbles were placed to surface as the tubing was withdrawn. No radiological contamination was noted. |
| 11:00 | 11:30 | The HHU and support equipment was moved and set-up on C6391. |
| 11:30 | 12:15 | Lunch Also a discussion was held regarding the new cleaning equipment. |
| 12:15 | 12:25 | The tip was knocked out with a weight bar. |
| 12:25 | 15:00 | Tubing was back-pulled from 152 ft to a depth of 124 ft bgs. Bentonite crumbles were placed to a depth of 123 ft bgs as the tubing was withdrawn. 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: 9-2-08<br>SIGNATURE: Kent Reynolds |

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6391 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 63 | **DATE:** 07/10/08 (Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE:** CONDUCT DECOMMISSIONING @ C6391. | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**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 |
|---|---|---|---|---|---|
| 2.5 in OD | N/A | CS | 2.6 in OD | 1.0 ft | SSS |

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

C6391 124 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 95 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | C6391 124 ft bgs |
| Drive tip depth (shift end) | 124 ft bgs |
| Casing stick up (shift end) | 2 ft |
| Drive String Length | 126 ft |

**SAMPLE SUMMARY**

N/A

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

| *TIME* FROM | TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:30 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Driving with side shields. |
| 08:30 | 09:00 | The Weekly safety topic was construction equipment dangers (see attached information). A secondary topic was aerosol cans and not leaving them in hot areas such as vehicles. A possibility exists that the can may explode. |
| 09:00 | ——— | Due to wind the C Tank Farm decommissioning activities were not conducted. |
| ——— | 12:00 | The PIC, Mr. Bill Clark, and Energy Solutions personnel look over the new pressure washer and possible locations for setting the washer up. |
| 12:00 | 12:30 | Lunch |
| 12:30 | ——— | A weekly safety inspection was conducted, no deficiencies were noted. |
| ——— | 15:00 | Hauled bentonite crumbles to the work location. |
| 15:00 | 15:30 | Secure site. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: [signature] |

**Construction Equipment Dangers**

Construction Equipment used on construction jobs often creates dangerous conditions. This week's Tail Gate Safety Topic examines a few situations which should be watched for at all times.

Any moving equipment such as skip loaders, back hoes, trenchers, cranes, hi-lifts, trucks, you name it, should be respected and avoided. Don't just assume that the operator sees you. You could wind up injured or worse. And don't depend on hearing a horn or an alarm to warn you that moving equipment is near. You may not be able to hear the equipment's alarm over other construction noise.

When you see that equipment is traveling backwards keep out of the way and stand clear until the operator has completed his maneuver. Never cut across the path behind any unit while it is backing. You could easily trip and full under the equipment. For the same reason you should never ride on the running boards, steps or drawbar or any equipment, even for a short distance.

During backing, the operator should have the project foreman clear the area behind the unit and provide direction. No operator should back a piece of equipment into and area without someone clearing the area and giving signals.

Watch out for swinging counterweights on equipment such as cranes. There is often a pinch-point between the counterweights and some obstruction when the unit swings. Make sure there is enough room for workers to pass and if there is not - shut off the area to any access.

Never ride on or near material that is being transported by equipment. The load could shift and you can be thrown to the ground. Also, clearance may not allow for your position and you can be crushed between overhead or side obstructions.

If you must ride on equipment, make sure that all parts of your body are inside the unit, including your arms and legs. In addition, it at all possible, get off any portable scaffold or work platform while the unit is being moved. The time it takes to get off will be much less than the time lost if you fall or the unit tips over.

Never walk alongside moving equipment. Keep in the clear in case it slides or turns, or the load shifts.

When you are working near equipment operating in the vicinity of power lines, don't touch or come in contact with the frame of the unit or the load cables. There is always the chance that the boom of the unit may hit the power lines. Warn the operator and the foreman any time you see this possibility and follow their instructions.

Don't walk under loads on cranes and hoists. Always take the path that avoids danger.

Never clean, adjust, lubricate, repair or work on a machine that is in operation. Stop the machine before working on it and replace the guards as soon as it is done and before operation is resumed.

The safest this to do around construction equipment is keep away while the equipment is in operation. If you must be near the equipment, make sure the operator knows you are working nearby and stay alert. Keeping your mind on where you are in relation to the equipment will not only prevent injuries but could save you life.

ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6391 | **WELL NUMBER:** N/A | **REPORT NUMBER: 64** | **DATE:** 07/14/08 (Monday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCT DECOMMISSIONING @ C6391.** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE: 124 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)*
C6391 124 ft 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 92 F

**CASING SUMMARY**

| | |
|---|---|
| Drive tip depth (shift start) | C6391 124 ft bgs |
| Drive tip depth (shift end) | 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, B. Clark (OP/CHG); P. Templeton, J. Clayton (HPT/CHG)B. Clark (PIC); M. Repko, D. Skoglie (ENERGY SOLUTIONS).

| TIME FROM | TIME TO | *WORK SUMMARY* |
|---|---|---|
| 06:00 | 08:20 | The Work Package is picked up by the NCO (Mr. Snook). Conducted Plan-of-the-Day meeting. The Safety topic that was discussed pertained to Biological hazards. |
| 08:20 | 08:43 | The Weekly safety topic was improper battery handling (see attached information). |
| 08:43 | 12:00 | Tubing was back-pulled from 124 ft to a depth of 72 ft bgs. Bentonite crumbles were placed to a depth of 73 ft bgs as the tubing was withdrawn. No radiological contamination was noted. |
| 12:00 | 12:30 | Lunch |
| 12:30 | 15:00 | Tubing was back-pulled from 72 ft to a depth of 0 ft bgs. Bentonite crumbles were placed to surface as the tubing was withdrawn. No radiological contamination was noted. |
| 15:00 | 15:30 | Secure site. |

| | |
|---|---|
| ***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: 9-2-08<br>SIGNATURE: Kurt Reynolds |

# Improper Battery Handling Can Burn You

Construction equipment charges most batteries while in use, but sometimes a battery must be recharged with a battery re-charger or the equipment must be jump-started because the battery is weak. The principal hazards of battery charging or jump-starting operations are acid burns, electric shock, battery explosion from hydrogen gas, and back strains from lifting the battery. Most workers do not recognize the hazards and only think about battery maintenance when they cannot start the equipment. Before attempting to charge a battery or jump-start a vehicle, you should know the following safety procedures:

## Battery Charging Procedures

- Wear splash-proof eye protection, such as goggles or a face shield, when working around batteries. Wear acid-proof gloves and aprons when handling battery acid.
- Never attempt to charge a frozen battery. Remove it from the equipment or vehicle and take it inside the shop to thaw before you charge it.
- Check the battery cells to make sure they contain the proper fluid level before charging the battery. Add water if necessary.
- Remove or loosen the vent caps to prevent pressure buildup in the battery unless the batteries are sealed and do not have removable vent caps.
- Recharge the battery in a well-ventilated area. When the battery is recharging it will release hydrogen and oxygen gas, which could cause an explosion if exposed to an open flame, heater, spark, and other source of ignition. Do not smoke in battery-charging areas.
- Charge the battery in a safe place where nothing can cause a short circuit or spark, which could lead to a fire. Keep metal tools, chains, and other metal objects away from the battery when it is charging.
- Don't touch both terminals of the battery at the same time because even though a battery has a DC voltage charge, you could get a burn or deadly electric shock.
- Lift properly when handling batteries. They are heavy and many workers have injured their backs trying to lift one. If a lifting strap is available, use it! Get help with large batteries.
- Do not overcharge the battery. Remove it from the charger as soon as it is fully charged.

## Jump-Starting Procedures

- Make sure both vehicles have a negative ground system generally indicated by the negative terminal being connected to the engine block or vehicle frame.
- Connect the positive terminals of the batteries together. Be extra careful not to connect the positive of one battery to the negative of the other battery.
- Connect the negative cable to the frame or engine block of the equipment with the good battery and then connect the other end of the cable to the frame or engine block of the equipment with the weak battery. Keep the vehicles separated.
- Disconnect the cables in the reverse order as soon as the equipment starts.

***A properly maintained battery will last a long time, but it doesn't last forever.***
***Avoid a shocking or explosive experience by following proper safety procedures.***

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ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

| | | | |
|---|---|---|---|
| **WELL I.D.:** C6391 | **WELL NUMBER:** N/A | **REPORT NUMBER:** 65 | **DATE:** 07/15,16,17,18/08 (Tuesday thru Friday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: CONDUCTING DEMOBILIZATION** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 | |
| **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 |
|---|---|---|---|---|---|
| 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 Hrs.

***DOCUMENTED DOWNTIME:***
07/17/08 9 hrs – HPT support

**WEATHER CONDITIONS** (373-2716)
Temperature 87 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**
N/A

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

| *DATE* | | *WORK SUMMARY* |
|---|---|---|
| 07/15/08 | | Safety Topic: Hand safety. A weekly safety topic on removing banding was discussed (see attached information). Cement two surface protection casings in place. Initiate mobilization of equipment to the RBA for release survey. Survey the misting fans (2) and air monitors (3) out of the C Tank Farm. Conduct sampling borehole survey. |
| 07/16/08 | | Safety Topic: Lightning and work requirements. Demobilization and release survey of support equipment from the C Tank Farm was conducted. Conduct walk-down of the new CH2M Hill pressure wash system. Also, looked over the wash location. |
| 07/17/08 | | No HPT support. No C Tank Farm work was performed. Organized and transported equipment. |
| 07/18/08 | | Safety Topic: Boating safety. The HHU was surveyed and released from the C Tank Farm. The felt amd plastic barrier was picked up and discarded. Remaining tooling was surveyed from the C Tank Farm. |

***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: 9-2-08
SIGNATURE: Kurt Reynolds

# Removing Construction Banding Is A Snap

Many different types of construction materials are banded together to make them easier to transport; however, if you don't remove the banding correctly it can cause serious injury. Bands, which are made of metal or plastic, are generally stretched tight to ensure that the materials are secure. When released, the tension on the banding can pop out in any direction if it is not restrained. Many workers have been hit in the eye or face by an uncontrolled band.

## The following are safety tips to protect yourself and co-workers from injury when removing banding:

- Set the load down. If the materials are not on a pallet, place some lumber or other supports under it to raise it off the ground. Never attempt to remove banding while the load is raised or suspended.
- Ensure that the materials (pipe, lumber, brick, rebar, etc) are secure and will not roll, fall over or shift before removing the banding. If necessary, use blocking to secure the materials.
- Make sure other workers are far enough away so they will not be struck by the banding if it pops loose when cut or by materials shifting after the band is cut.
- Wear eye protection to protect your eyes if you lose control of the banding.
- Wear leather work gloves to protect your hands from sharp edges and burrs. Just because a band may be made out of plastic does not mean it will not have a sharp edge or burrs.
- Stand to the side of the materials before removing the band in case the band breaks free or the pile shifts. You don't want to be in front of a load of pipe if it starts to roll after you cut the band.
- Cut the band with a band cutter, tin snips or other cutting tool. Secure one end of the band to make sure the other end does not release toward you or other workers.
- Remove the banding from the material and dispose of it in a safe place. Leaving banding lying loose on the ground creates a tripping hazard that could cause you or somebody else to fall.

**Removing banding is a snap when done safely. Use the right tools, wear your PPE, stand to the side and control the band when it is cut!**

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ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER: 66** | **DATE:** 07/21,22,23,24/08 (Monday thru Thursday) |
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 | |
| **PURPOSE: CONDUCTING DEMOBILIZATION** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 | |
| **REFERENCE MEASURING POINT:** Ground Level | | **TOTAL SHIFT FOOTAGE: 0 ft** | |

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | | 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 Hrs.

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature ~87 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson

License no. 1217

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

| *DATE* | | *WORK SUMMARY* |
|---|---|---|
| 07/21/08 | | Safety Topic: Operating procedures. Conduct maintenance on the HHU. The engine oil and filter and hydraulic oil and filter were changed. The low pressure side accumulator was changed. 20 radiologically contaminated sections of tubing was packaged n a burial box. 50 sections of tubing was surveyed and released. |
| 07/22/08 | | Safety Topic: Paper cuts. A weekly safety topic was discussed regarding Back Injuries (see attached information). Complete maintenance on the HHU. 50 sections of tubing was surveyed and released. |
| 07/23/08 | | Safety Topic: Substantial footwear. Complete survey of drive tubing out of C Tank Farm. Initiate set-up of wash pad and pressure washer equipment. Reviewed pressure washer operating system with safety manager. Attend planning meeting for TY Tank Farm work. |
| 07/24/08 | | Safety Topic: Eye protection. Complete set-up of wash pad. Pressure wash HHU. Mobilize HHU to TY Tank Farm. Set-up wash pad for cleaning tubing. Consolidated tooling on pallets. |

***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: 9-2-08
SIGNATURE: Kurt Reynolds

# Back Injury Prevention

***How is your back today? Did you know that approximately 80 percent of the population will be troubled by back pain sometime in their lives? Once you injure your back, the possibility of it happening again greatly increases. If you seriously injure your back you could be disabled for the rest of your life.***

Back injuries can be caused by incorrectly lifting, carrying, pushing, and pulling materials, tools, and equipment. Even simple tasks like shoveling dirt can cause a back injury if not performed correctly.

Your back plays an important role in almost everything you do. Prevent a back injury by paying attention to the moves you make, including the way you stand, sit, sleep, drive, and work.

**Protecting Your Back From Injury**

- Stretch your muscles before starting work.
- Follow proper lifting procedures. Bend your knees, get a good grip, keep the load close to your body, and lift with your legs not your back.
- Use carts, dollies, forklifts, or other mechanical equipment to lift heavy loads.
- Use a wrecking bar to provide leverage when you raise or position a heavy object, such as a pipe .
- Never be ashamed to ask for help with heavy loads. Tomorrow the other guy may need your help. If the load is greater than 50 pounds, get someone to help you or use equipment to lift and move the load. Also, get help with loads that are difficult to handle, such as long sections of pipe.
- Always store materials close to the work area so they do not have to be moved far when used and store the materials at waist height if possible.
- Make sure the path you will follow when handling materials is clear of debris.
- Do not overexert yourself. Take periodic rest breaks or vary your tasks.
- Do not jump into trenches, or off trucks and equipment. The shock could injure your back. Use a ladder or climb down carefully.
- Lose some weight from your mid section. A pot belly strains your back muscles and the disks in your lower back.
- Start a regular exercise program. It's the best way to reduce the risk of lower back injury. Strengthen your back and the stomach muscles that support it.

***Too many back injuries occur on the job. They are preventable if you take the time to think about what you are doing. Evaluate the task, warm up your muscles, and get help with heavy loads. It is your back, and it is up to you to protect it!***

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ENERGYSOLUTIONS

# Energy Solutions Inc. Western Operations

## DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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| | | | |
|---|---|---|---|
| **WELL I.D.:** N/A | **WELL NUMBER:** N/A | **REPORT NUMBER:** 67 | **DATE:** 07/28,29,30,31/08 (Monday thru Thursday) |

| | | |
|---|---|---|
| **CONTRACT NUMBER:** 31672-3<br>OPERABLE UNIT: 200-BP-5 | **START CARD NO:** S27644/A118507<br>**EXCAVATION PERMIT:** DAN3363<br>(U-Dig Number 8067321) | **RIG MODEL/NO:** Hydraulic Hammer Unit<br>HHU CASE<br>AHA: AHA-08-001-CHG, Rev 0 |

| | | |
|---|---|---|
| **PURPOSE: CONDUCTING DEMOBILIZATION** | **REFERENCE:** FSWO-DOW-025<br>RWP: CO-460, Rev 0 | **LOCATION:** C Tank Farm<br>SW NE Section 2 12N 2 |

**REFERENCE MEASURING POINT:** Ground Level

**TOTAL SHIFT FOOTAGE:** 0 ft

**CONSTRUCTION DESCRIPTION:** N/A

| CASING SIZE | | 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 Hrs.

***DOCUMENTED DOWNTIME:***

N/A

**WEATHER CONDITIONS** (373-2716)

Temperature ~87 F

**CASING SUMMARY**

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

**SAMPLE SUMMARY**

N/A

**OPERATOR**: K. Olson

License no. 1217

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

| *DATE* | | *WORK SUMMARY* |
|---|---|---|
| 07/28/08 | | Safety Topic: Tripping hazards. Electricians remove the Rudy cart from the C Tank farm. Initiate support equipment move to the TY Tank farm. The wash pad is set-up for the drive tubing. Teamsters transport drive tubing to wash pad and stage. |
| 07/29/08 | | Safety Topic: Hard hats. Drive tubing (~50%) was pressure washed. Carpenters unblock support trailers. The Teamster's move support trailers to the TY tank Farm. Teamsters move more drive tubing to the wash pad. Water was obtained for the next day's washing. |
| 07/30/08 | | Safety Topic: Safety training and education (1926.21). A weekly safety meeting was held discussing Overhead power lines (see additional information). Pressure wash drive tubing. The Teamsters move support equipment from C Tank Farm to TY Tank Farm. Water was obtained for the next day's washing. |
| 07/31/08 | | Safety Topic: Housekeeping (1926.25). Complete pressure washing of drive tubing and related parts. Installed a winch on the HHU. Clean C Tank Farm support area and organize the horse trailer. |
| | | Report 67 completes field activity reports for the UPR 200-E-81 characterization effort. |

***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: 9-2-08
SIGNATURE: Kurt Reynolds

# Overhead Power Lines

***Never underestimate or ignore overhead power lines. You can be killed in an instant! Contact with power lines accounts for 90 percent of the electrocutions in the construction industry.***

When equipment contacts or works too close to overhead lines, operators, riggers, and other workers are at risk of electrocution. Most overhead power line incidents involve cranes, but they can also involve backhoes, excavators, drilling rigs, dump trucks, and other equipment. You should also be careful when handling ladders, pipe, and other materials near power lines.

When working near overhead power lines follow the proper procedures:

- ▲ De-energize or ground overhead power lines before work is performed near the power lines. Protective measures (such as guarding, insulating the lines, or barrier protection) must be installed to prevent employees and equipment from contacting the lines.
- ▲ Stay at least 10 feet away from the overhead power lines. If the line voltage is more than 50,000 volts, the clearance for equipment and any unqualified personnel must be increased by 4 inches for each additional 10,000 volts.
- ▲ Notify the equipment operator if the equipment gets too close (within 10 feet) to the power line.
- ▲ Stay away from mechanical equipment when it is working near overhead power lines. In most cases, riggers and other workers standing on the ground near the equipment are the victims of overhead power line electrocutions.
- ▲ Move away from the power line and the equipment if the equipment contacts the power line or if the electricity arcs to the equipment. It is possible that the ground will become energized with electricity, therefore you should shuffle away using very small steps.
- ▲ Never work directly with electricity unless you are trained and qualified to do so, and always use the personal protective equipment required for the job you perform, such as rubber insulating gloves, sleeves, matting, blankets, and Class B hard hat.
- ▲ Never touch or move a power line with a shovel, pole, stick, branch, ladder or anything else that is not specifically designed for the purpose. Tools that are used to handle energized lines must be designed and constructed to withstand the voltages and stresses to which they are exposed. Even wood objects can conduct electricity if the wood is damp and at high enough voltages.
- ▲ Never attempt to remove trees or branches from power lines unless you have been specifically trained to work near power lines.
- ▲ Do not store equipment, tools, and materials under power lines.

***Don't underestimate the hazard and always stay clear of power lines until you are absolutely sure they have been de-energized. It only takes one mistake, very little current (60 milliamps), and a fraction of a second for an electrocution to happen. Don't let it happen to you.***

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# APPENDIX E

**RPP-38406, *SMALL DIAMETER GEOPHYSICAL LOGGING FOR UPR-200-E-81***

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RPP-38406
Revision 0

# Small Diameter Geophysical Logging for UPR-200-E-81

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

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC27-99RL14047

CH2MHILL
*Hanford Group, Inc.*

**P.O. Box 1500**
**Richland, Washington**

RPP-38406
Revision 0

# Small Diameter Geophysical Logging for UPR-200-E-81

R. Randall
Three Rivers Scientific

R. Price
Pacific Northwest Geophysics

Date Published
July 2008

Prepared for the U.S. Department of Energy
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Release Approval _____ Date _____

RPP-38406
Revision 0

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## TERMS

| | |
|---|---|
| Bgs | Below ground surface |
| DOE | U.S. Department of Energy |
| Energy*Solutions* | Energy*Solutions* Federal Services, Inc., Northwest Operations |
| PNG | Pacific Northwest Geophysics |
| VF | Volume Fraction |

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# SMALL DIAMETER GEOPHYSICAL LOGGING FOR UPR-200-E-81

## 1.0 INTRODUCTION

Pacific Northwest Geophysics (PNG) and Three Rivers Scientific provided small diameter (slim-hole) logging at the unplanned release (UPR-200-E-81) near the 241-CR-151 Diversion Box. This logging was intended to aid in defining the extent of subsurface contamination resulting from apparent pipe failure, which caused the unplanned release. Logging surveys were conducted in five 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 two deep probeholes: C6393 and C6399. This report includes the survey results for each of the probeholes, as well as the results of the gyroscope surveys (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 at 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 three of the project's probeholes: C6391, C6393, and C6395. The highest gamma activity was encountered in probehole C6393 with the maximum eCs-137 concentration of 45,000 pCi/g occurring at 1 m (3 ft) below ground surface (bgs). This contamination zone extended from 1 m to 13.4 m (3.3 ft to 44 ft) bgs.

Neutron-neutron moisture logs were also collected in the five probeholes. The moisture content in the five 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 surveys were acquired to assess the degree of deviation from vertical for the deep probeholes. Discussions of the gyro equipment, data processing, and survey results are presented in Section 3.0.

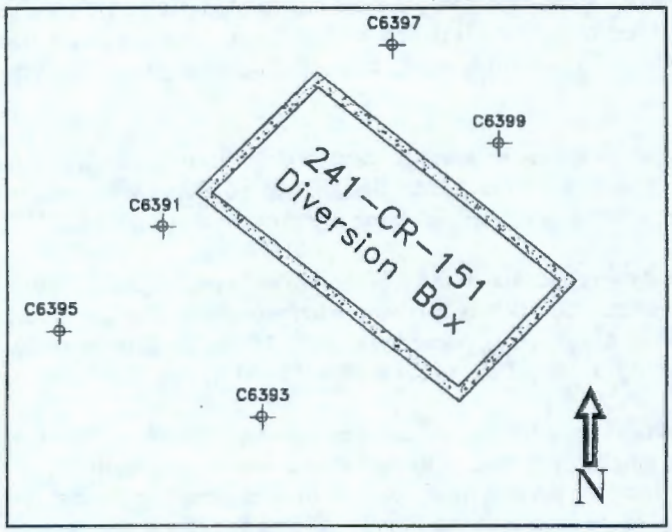
All calibrations, logging data acquisition, analysis and data management processes for this project were conducted in compliance with *Procedures: Calibration, Logging, Quality Assurance and Data Management* (PNG 2007) approved by Energy*Solutions* Federal Services, Inc., Northwest Operations (Energy*Solutions*).

## 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, and 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 (C6391 – C6399). Appendix A also contains a table summarizing data for each probehole: detectors used, probehole depth, depth of maximum gamma activity, and maximum concentration of eCs-137 in pCi/g. Figure 1 shows a map view of the probehole locations.

Figure 1. Push Hole Locations at UPR-200-E-81 (241-CR-151 Diversion Box).



## 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 the (low-concentration) gross gamma calibration zone, identified as SBL. The calibration method incorporated the attenuation effect of the steel casing of the probeholes. A section of the steel drill tubing (1 m [3 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).

The NaI gross gamma detector was also calibrated for eCs-137 (pCi/g). The ratio between the calibration coefficients of eRa-226 and eCs-137 was identified previously (Randall and Price 2006) and was used to assign the eCs-137 conversion factor of 0.316 (pCi/g per cps) for casing thickness of 0.97 cm (0.38 in.). 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) |
|---|---|---|---|
| SBA | 61.2 | 416.5 | 417.9 |

[a]Count rates are mean of 10 sample measurements at 100 sec each, 0.38-in. casing, 4/19/2008.
[b]NaI detector system dead time is 8.92 microsecond.

The NaI gamma surveys were logged at 1.2 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.

[1]Coleman is a registered trademark of The Coleman Company, Inc., Wichita, Kansas.
[2]Ortec is a registered trademark of EG&G Ortec, Gouda, Netherlands.

The dead time correction is a nonparalysable relationship (Knoll 1979) and is described by the following equation:

$$C_t = \frac{C_{obs}}{1 - \varepsilon \cdot C_{obs}}$$

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 8.92 μs. The dead time factor was determined when the detector was calibrated for eCs-137 in the Hanford vadose well 299-W10-72.

The 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 detectors (70% and high rate tools, operated by Stoller Corporation). Casing in the well is 0.731 cm (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 0.24 cm (0.095 in.) thick was installed over the detector for calibration.

## 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 that was manufactured by Campbell Pacific Nuclear, and is identified by the tool serial number H370608792.

The integrity of the sealed neutron source is always maintained when used in calibration and probehole logging activities. Source integrity is maintained by inserting the PNG-owned neutron detector module into the housing containing the sealed neutron source.

Calibration was performed in six borehole calibration models (Meisner and Randall 1995). Three of these models had a 15.24 cm (6-in.) hole size and three models had a 20.32 cm (8-in.) hole size. The moisture content was different for each borehole model within each set of three models (5, 12, and 20 percent by volume). The detector count rate in each of the six borehole calibration models is summarized in Table 2. The calibration certificate is shown in Figure 3.

Table 2. Moisture Calibration Data.

| Moisture Content Percent – volume fraction | 6 inch Models[a] (cps) | 8 inch Models[a] (cps) |
|---|---|---|
| 5% vf | 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. 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 (0.825 cm [0.325 in.]) Given that the probehole casing thickness is 0.97 cm (0.38 in.), a correction factor of 1.055 is required to increase (normalize) the observed neutron detector count rate to the conditions of the calibration model (Meisner et al. 1996).

## 3.0 GYROSCOPE BOREHOLE DEVIATION SURVEY

The gyroscope 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 sonde's sensors are recorded at the rate of two samples per second and the depth position of the sonde is recorded in feet. The logging probe speed is 9.1 m/min (30 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 degree. 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 (eRa-226 and eCs-137).

# Certificate of Calibration
## SD.GR.NaI.1
May 6, 2008

Data were taken at the Hanford KUT models on April 19, 2008, with the designated scintillator tool, SD.GR.NaI.1. The SBA model was used for the gross gamma calibration and at least ten spectra were recorded in the model in order to perform statistical analysis. The observed deviations were seen to be near the theoretically predicted variation; refer to the file "-Calibrations\NaI\2008\NaI-stats.xls" for this analysis.

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 $^{226}$Ra 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 & 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:

$$a = .139 \text{ eRa-226 (pCi/g) / (c/s)}$$
$$b = 0$$

The calibration for eCs-137 for the SD.GR.NaI.1 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 equivalent $^{137}$Cs 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.

There is a ratio of eRa-226 calibration coefficient to the eCs-137 calibration coefficient for each instrument. The resulting coefficient, a*Cs, was found to be .316 (Randall and Price 2006) for a ratio between the two coefficients of 2.27. Thus a factor of 2.27 times the eRa-226 calibration will yield the eCs-137 calibration coefficient. Thus: $\alpha$=0.316 eCs-137 (pCi/g)/(c/s)

The digital files contain:

- Calibration raw data
- MathCad[a] data analysis files
- Spreadsheet data formatting

The undersigned certifies that the analysis files are archived in "SD-GR-NaI-1_2008.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 SD.GR.NaI.1 tool, effective April 19, 2008.

Signature:

/s/ Russel Randall, PhD — May 6, 2008
Three Rivers Scientific

[a]MathCAD is a registered trademark of Mathsoft Corporation, Cambridge, Massachusetts.

Figure 3. 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 4. 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 α 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**
**α = 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

## 4.0 CONCLUSION

Scintillation Gross Gamma and Neutron Moisture survey logs were collected in five probeholes installed at the UPR-200-E-81 investigation site near the 241-CR-151 Diversion Box. Two probeholes (C6393 and C6399) were driven to the depth of 73.8 m (242 ft). These two probeholes were also logged with the gyroscope sonde to document their path. The remaining three probeholes were driven to approximately 47.2 m (155 ft) bgs.

The rapid-scan gamma surveys of the probeholes can be summarized as follows.

- Two of the five probeholes (C6397 and C6399) showed only background activity from the natural radionuclides. Gamma activity, above background levels, was encountered in three probeholes (C6391, C6393, and C6395) with the highest activity occurring at shallow depths. The maximum depth of the gamma-emitting contamination was encountered in probehole C6393 at 13.4 m (44 ft) bgs. C6393 also contained the highest gamma activity. The maximum depth of gamma-emitting contamination was less than 3.6 m (12 ft) in the other two probeholes (C6391 and C6395).
- The maximum gamma activity encountered was 45,000 pCi/g of eCs-137 at 0.9 m (3 ft) bgs in probehole C6393.

The neutron moisture surveys for all probeholes had unique profiles when each log was examined in detail. However, a generalized review of the profiles of all probeholes reveals the following similarities (discussed below and shown in Table 3).

- All five of the probeholes have a clearly recognizable moisture peak at approximately 41 m (135 ft) bgs. See Column B in Table 3. This feature is accompanied by baseline character changes above and below the feature. The baseline (average moisture content) below the feature has fewer deflections and maintains moisture at approximately 5% vf; whereas, the baseline above the feature has a higher number of excursions (increases and decreases) in moisture content. This change in response character of the moisture log above and below along with a sharp identifiable and correlatable peak indicates a change in formation materials (e.g., more homogenous sediments below the feature as opposed to higher moisture content in a number of zones above). These changes in log character may indicate a dispositional or facies type change in the Hanford sediments encountered in this area.
- At the top of each probehole, a high-moisture zone is present that extends from the surface down to depths of 7.62 to 13.72 m (25 to 45 ft). The moisture content in this upper zone varies and is characteristic of stratigraphy-controlled conditions. The maximum depth of this upper moisture zone is shown in column C of Table 3.
- An intermediate zone of high-moisture content that varies between 16.15 and 20.42 m (53 and 67 ft) is shown in column D of Table 3.
- Probehole C6399 has a thin zone with high moisture content near the bottom of the hole at 72.16 m (236.75 ft). There is no corresponding high-moisture zone at the bottom of the other deep probehole (C6393). A review of the log response indicated it is not likely that the large

peak is an artifact of moisture condensation inside the tubing. The high-moisture zone in probehole C6399 occurs 0.30 m (1 ft) above the bottom of the probehole (at 72.47 m [237.76 ft]). This type of log response is not characteristic of moisture accumulation in the bottom of tubing.

Table 3. Moisture Survey Summary.

| Probehole | Column B Lower Moisture Zone (meters, feet) | Column C Upper Moisture Zone (meters, feet) | Column D Intermediate Moisture Zone (meters, feet) |
|---|---|---|---|
| C6391 | 40.9 m, 134 ft | 7.9 m, 26 ft | 17.4 m, 57 ft |
| C6393 | 41.2 m, 135 ft | 13.7 m, 45 ft | 18.0 m, 59 ft |
| C6395 | 40.9 m, 134 ft | 7.6 m, 25 ft | 16.2 m, 53 ft |
| C6397 | 41.5 m, 136 ft | 8.5 m, 28 ft | 19.8 m, 65 ft |
| C6399 | 41.5 m, 136 ft | 10.7 m, 35 ft | 20.4 m, 67 ft |

The gyroscope deviation surveys for probeholes C6393 and C6399 are shown in Appendix A. The plot shows both the in-run and out-run survey results that are summarized in Tables 4 and 5. The Closure Distance column shows the distance from the probehole Northing and Easting positions to the vertical position. The deviation (dip) is measured from vertical (0 degrees). The Depth column shows the distance measured down the probehole and the Elevation column shows the vertical depth computed from the gyro survey.

Table 4. Gyroscope Survey Results for C6393.

| Depth (meters, feet) | Northing (feet) | Easting (feet) | Closure Distance (meters, feet) | Elevation (feet) | Dip (degrees) |
|---|---|---|---|---|---|
| 0.0 m, 0 ft | 0.00 | 0.00 | 0.00 m, 0.00 ft | 0.0 | 0.24 |
| 15.24 m, 50 ft | -0.55 | 0.18 | 0.17 m, 0.6 ft | -50.0 | 1.00 |
| 30.49 m, 100 ft | -1.64 | 0.84 | 0.56 m, 1.8 ft | -99.9 | 1.90 |
| 45.73 m, 150 ft | -3.76 | 2.06 | 1.31 m, 4.3 ft | -149.8 | 3.64 |
| 60.98 m, 200 ft | -5.92 | 3.89 | 2.16 m, 7.1 ft | -199.8 | 3.12 |
| 72.04 m, 236.3 ft | -6.961 | 5.55 | 2.71m, 8.9 ft | -236.1 | 2.95 |

Table 5. Gyroscope Survey Results for C6399.

| Depth (meters, feet) | Northing (feet) | Easting (feet) | Closure Distance (meters, feet) | Elevation (feet) | Dip (degrees) |
|---|---|---|---|---|---|
| 0.0 m, 0 ft | 0.00 | 0.00 | 0.00 m, 0.00 ft | 0.0 | 0.60 |
| 15.24 m, 50 ft | -0.69 | 0.11 | 0.18 m, 0.6 ft | -50.0 | 1.59 |
| 30.49 m, 100 ft | -1.97 | 0.91 | 0.55 m, 1.8 ft | -100.0 | 1.84 |
| 45.73 m, 150 ft | -2.41 | 1.89 | 0.93 m, 3.1 ft | -150.0 | 1.55 |
| 60.98 m, 200 ft | -3.00 | 2.77 | 1.25 m, 4.1 ft | -200.0 | 0.78 |
| 71.74 m, 235.3 ft | -3.24 | 3.10 | 1.37m, 4.5 ft | -235.3 | 0.40 |

## 5.0 REFERENCES

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Randall, Russel R. and David C. Stromswold, 1995, *Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models*, WHC-SD-EN-TI-293, Rev 0, Westinghouse Hanford Company, Richland, Washington.

Randall, Russel R. and Randall K. Price, 2006, *Gamma Surveys of Single Shell Tank Laterals for A and SX Tank Farm*, RPP-RPT-27605, Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.

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 follow for the five probeholes installed around the UPR-200-E-81 investigation site. Each probehole was surveyed with both the gross gamma and moisture sondes. The two deep probeholes, C6393 and C6399, were also surveyed with the gyroscope sonde. Also, the two deep probeholes, C6393 and C6399, are displayed twice: (1) at the standard depth scale of 47.2 m (155 ft) and (2) at the depth scale of 76.2 m (250 ft).

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).

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 plot scale for eRa-226 is 0-25 pCi/g. 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.
- 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. The plot scale for eCs-137 is logarithmic from 1 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. The probehole survey summary is shown in Table A1.

Figure A1. Plot Legend.

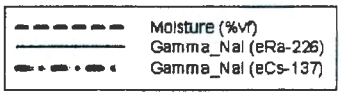

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Table A1. Probehole Survey Summary.

| Hole | Gross Gamma | Neutron Moisture | Hole Depth (meters, feet) | Depth Max Gamma Activity | Max eCs-137 (pCi/g) | Comment |
|---|---|---|---|---|---|---|
| C6391 | X | **Moisture** | 46.6 m, 153 ft | 9 ft | 500 | |
| C6393 | X | **Moisture** | 72.2 m, 237 ft | 3 ft | 45,000 | Deep Hole. Gyroscope Survey |
| C6395 | X | **Moisture** | 46.3 m, 152 ft | 2 ft | 45 | |
| C6397 | X | **Moisture** | 46.6 m, 153 ft | Natural | Background | |
| C6399 | X | **Moisture** | 72.2 m, 237 ft | Natural | Background | Deep Hole. Gyroscope Survey |

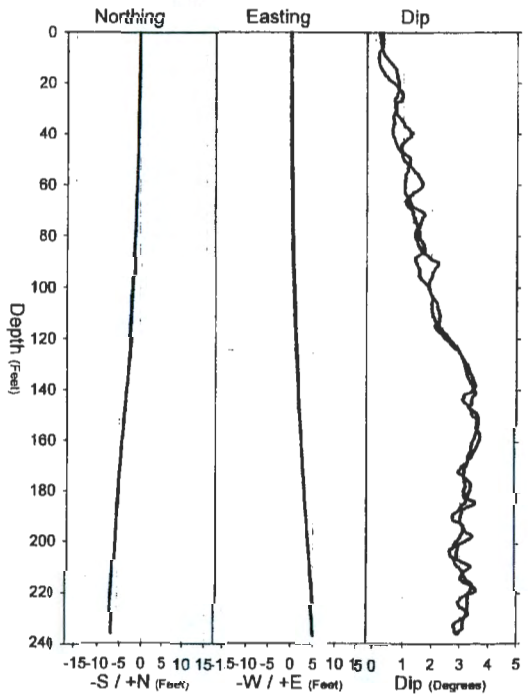
# Gyroscope Hole Path Survey

**Energy Solutions Federal Services & Pacific Northwest Geophysics**

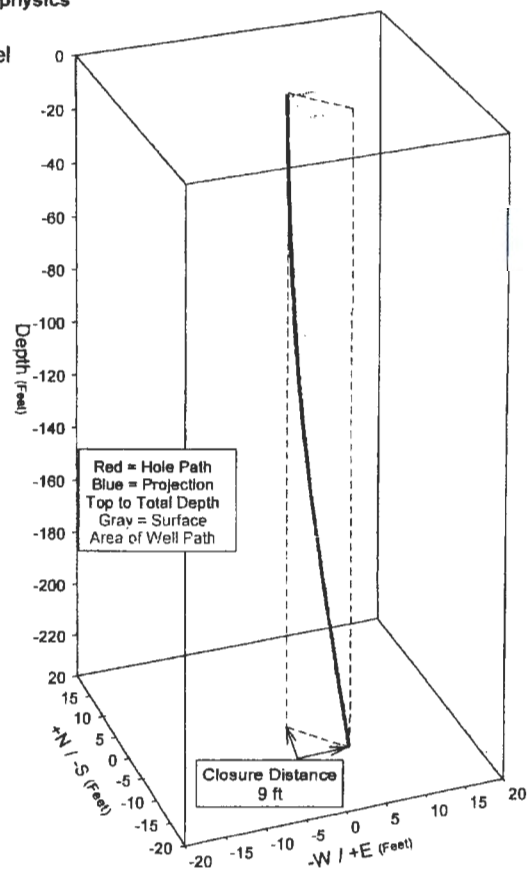
Project: UPR-200-E-81
Hole: C6393

Log Date: May 2008
Depth Ref: Ground Level

Top N0.0 E0.0 Depth 0.0
Base N-7 E5.5 Depth-236.1ft
Max Deviation: 3.6-Deg @ 159ft
Depth Meas.=236.35ft Vert.=236.13ft




## 3D Trajectory



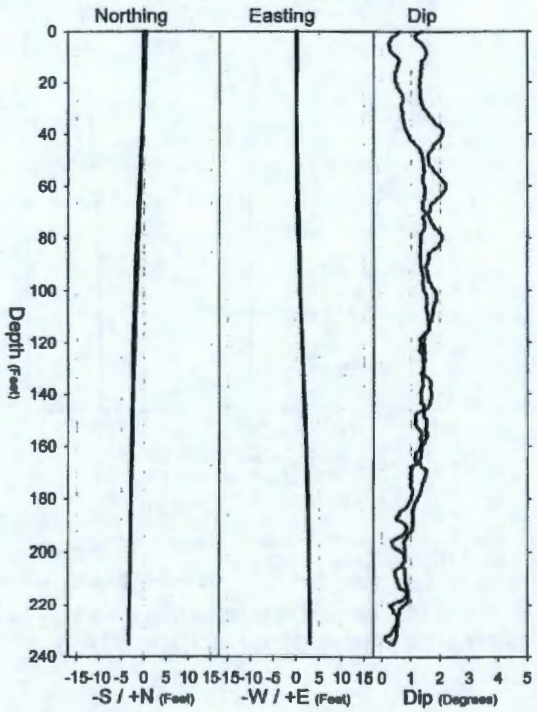
# Gyroscope Hole Path Survey

**Energy Solutions Federal Services & Pacific Northwest Geophysics**

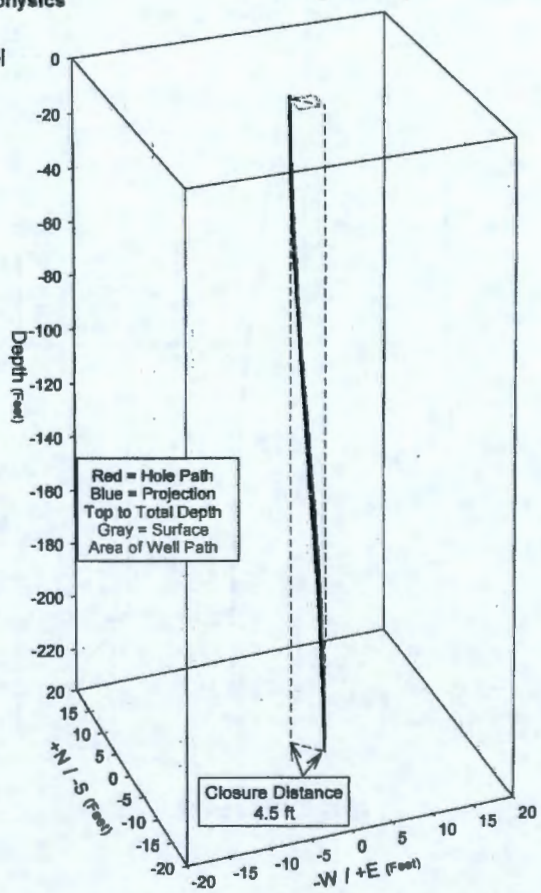
Project: UPR-200-E-81
Hole: C6399

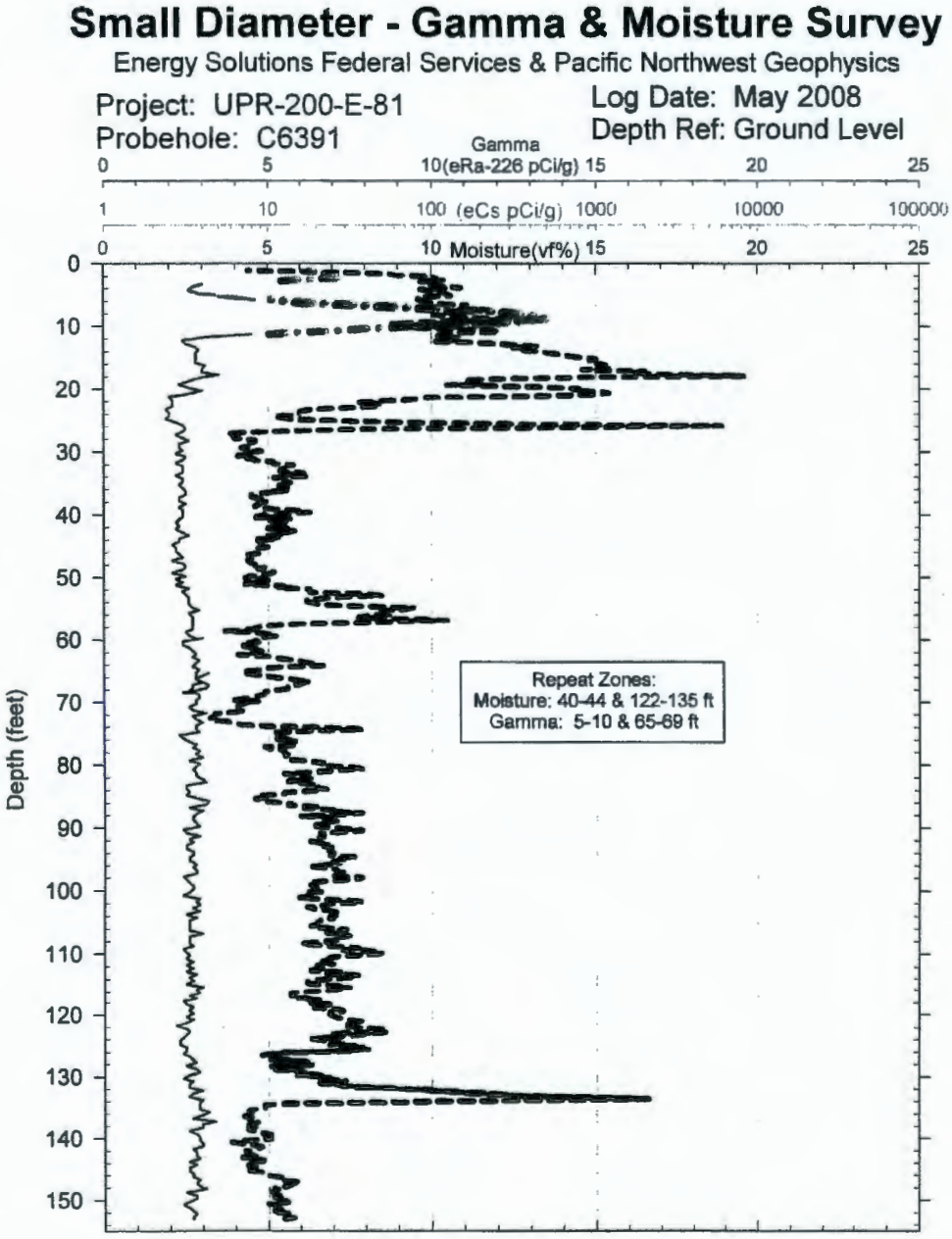
Log Date: May 2008
Depth Ref: Ground Level

Top N0.0 E0.0 Depth 0.0
Base N-3.24 E3.10 Depth-235.29ft
Max Deviation: 2.2-Deg @ 60ft
Depth Meas.=235.34ft Vert.=235.29ft




## 3D Trajectory




Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-81
Probehole: C6391
Log Date: May 2008
Depth Ref: Ground Level
Gamma
10(eRa-226 pCi/g)
(eCs pCi/g)
Moisture(vf%)
Depth (feet)
Repeat Zones:
Moisture: 40-44 & 122-135 ft
Gamma: 5-10 & 65-69 ft

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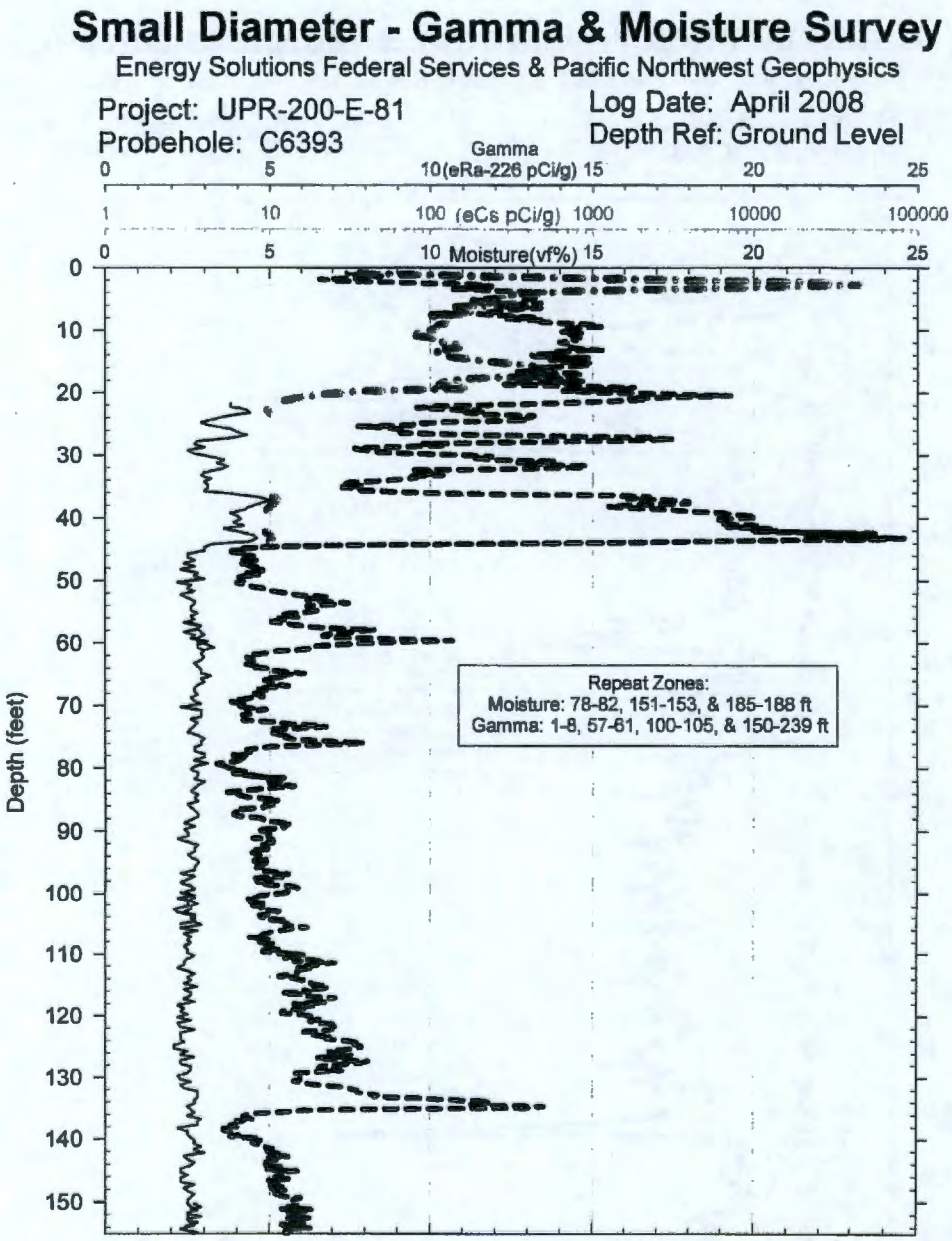
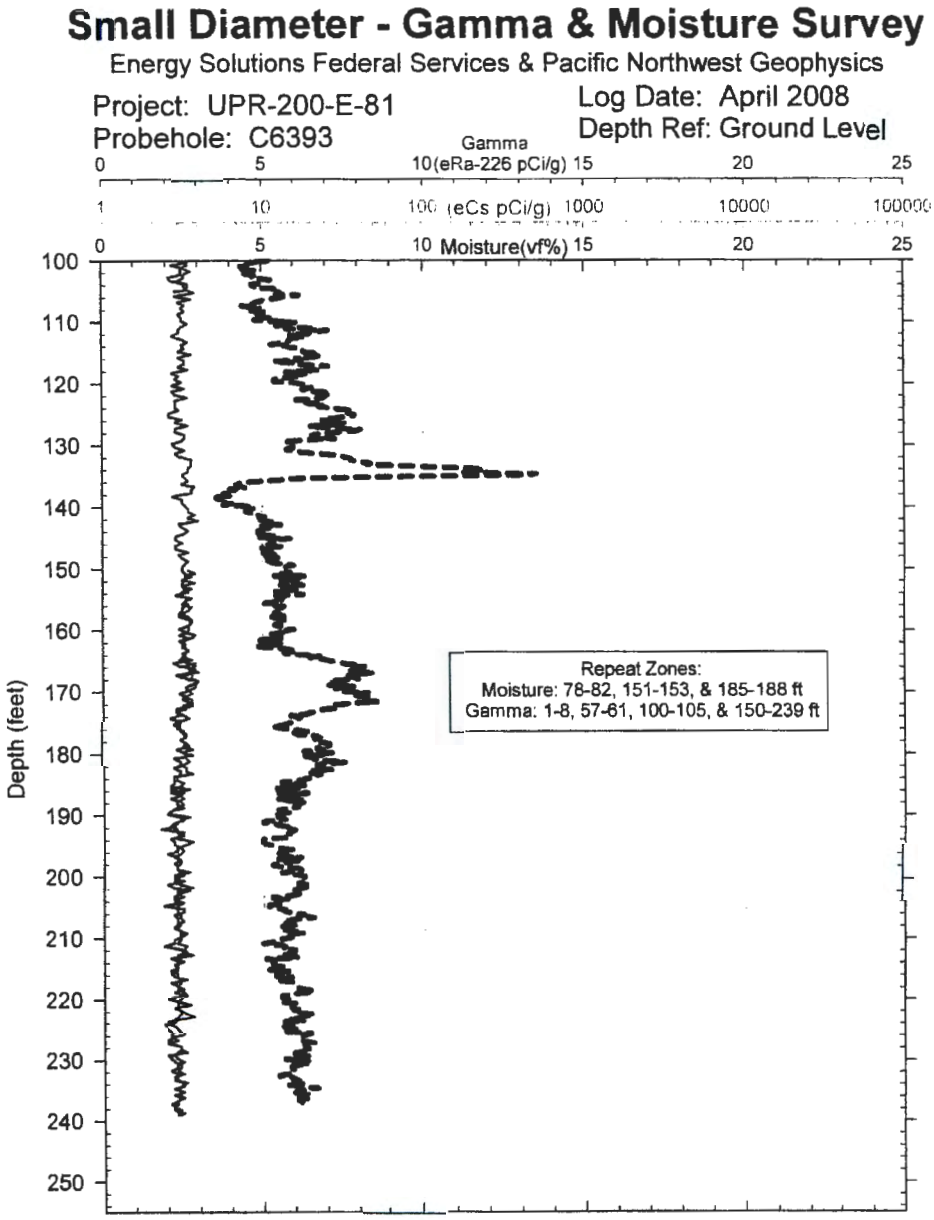
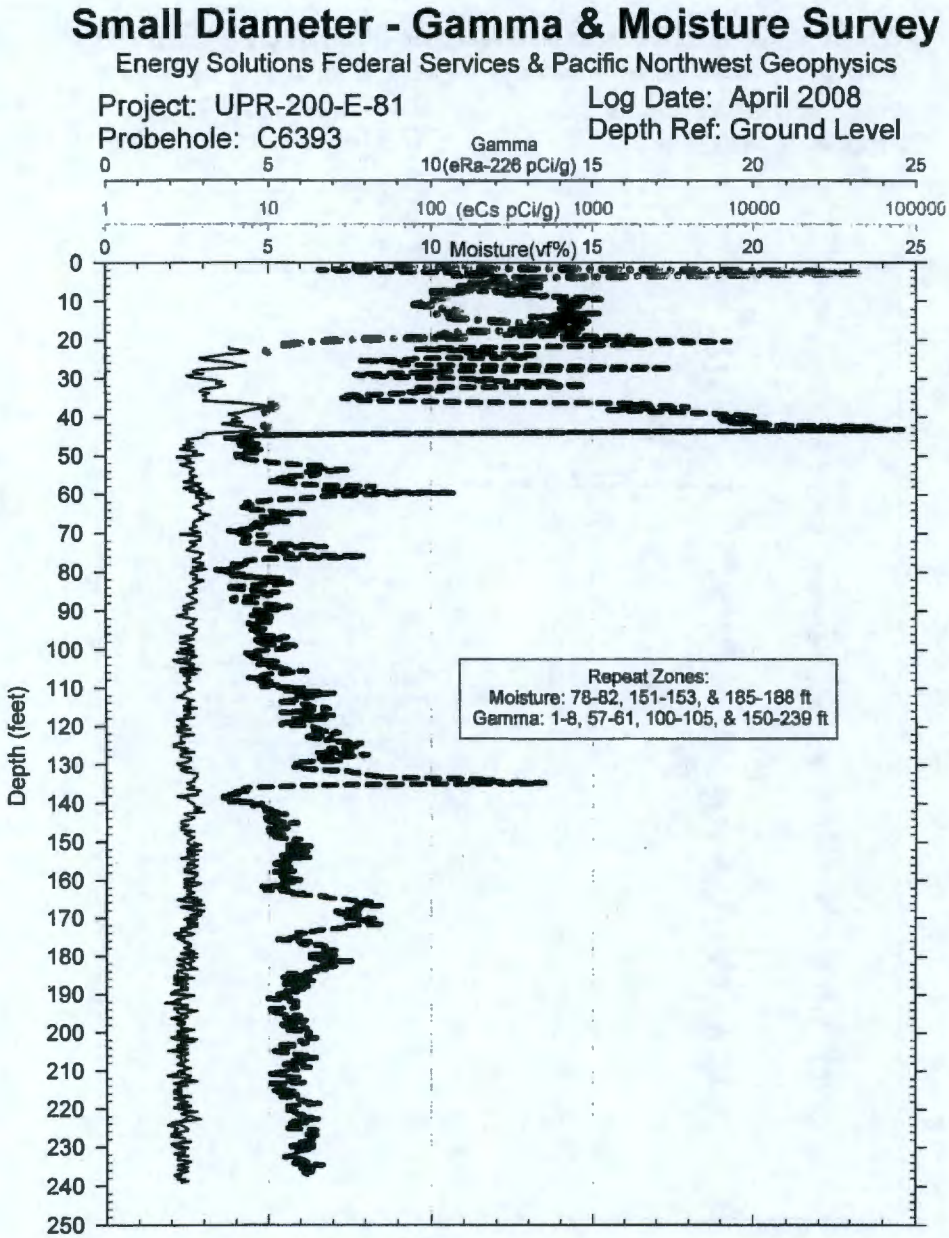
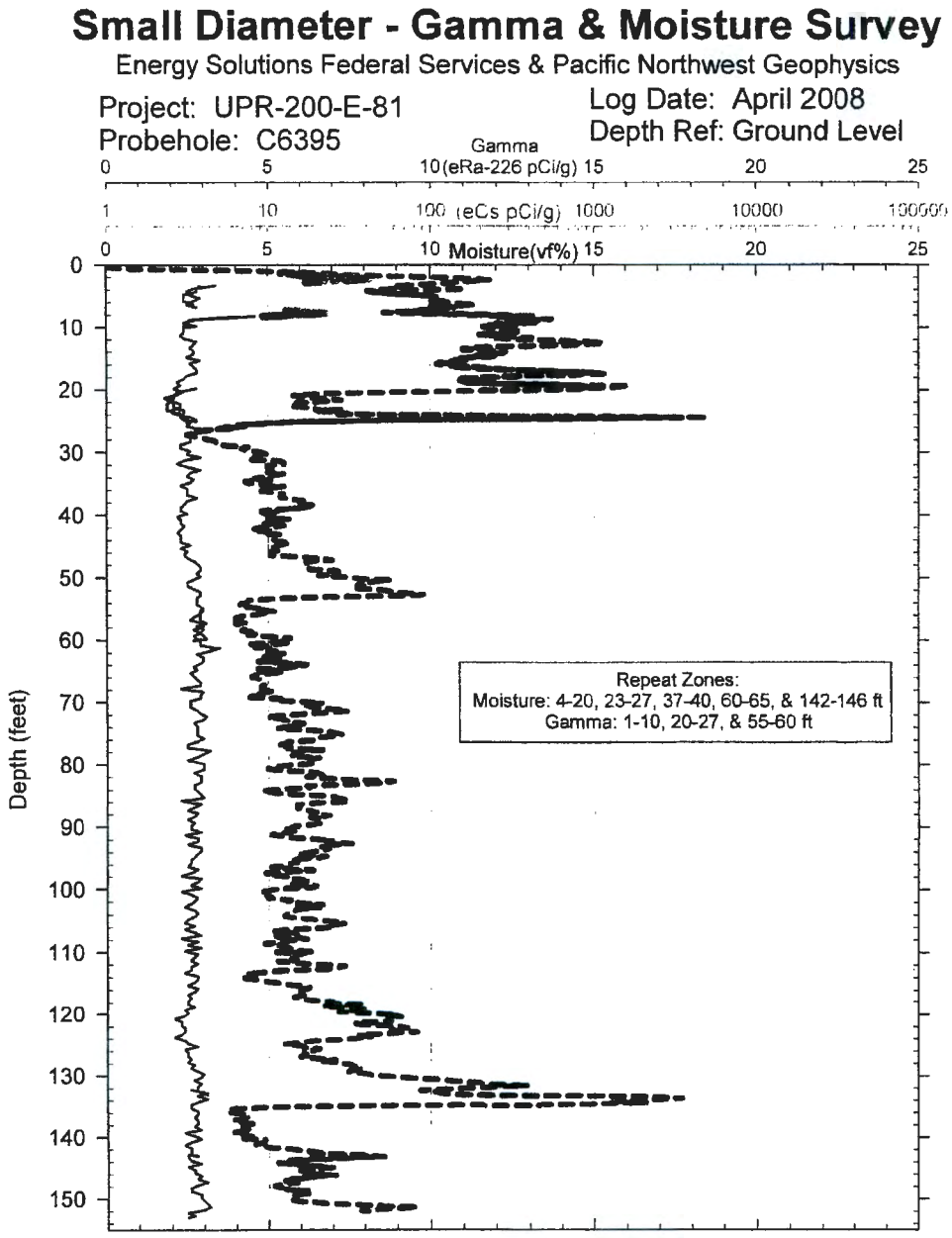



A-6

RPP-38406, Rev. 0




Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-81
Probehole: C6393
Log Date: April 2008
Depth Ref: Ground Level
Gamma
10(eRa-226 pCi/g)
(eCs pCi/g)
Moisture(vf%)
Depth (feet)
Repeat Zones:
Moisture: 78-82, 151-153, & 185-188 ft
Gamma: 1-8, 57-61, 100-105, & 150-239 ft


Small Diameter - Gamma & Moisture Survey
Energy Solutions Federal Services & Pacific Northwest Geophysics
Project: UPR-200-E-81
Probehole: C6395
Log Date: April 2008
Depth Ref: Ground Level
Gamma
0 5 10 (eRa-226 pCi/g) 15 20 25
1 10 100 (eCs pCi/g) 1000 10000 100000
0 5 10 Moisture(vf%) 15 20 25
Depth (feet)
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Repeat Zones:
Moisture: 4-20, 23-27, 37-40, 60-65, & 142-146 ft
Gamma: 1-10, 20-27, & 55-60 ft

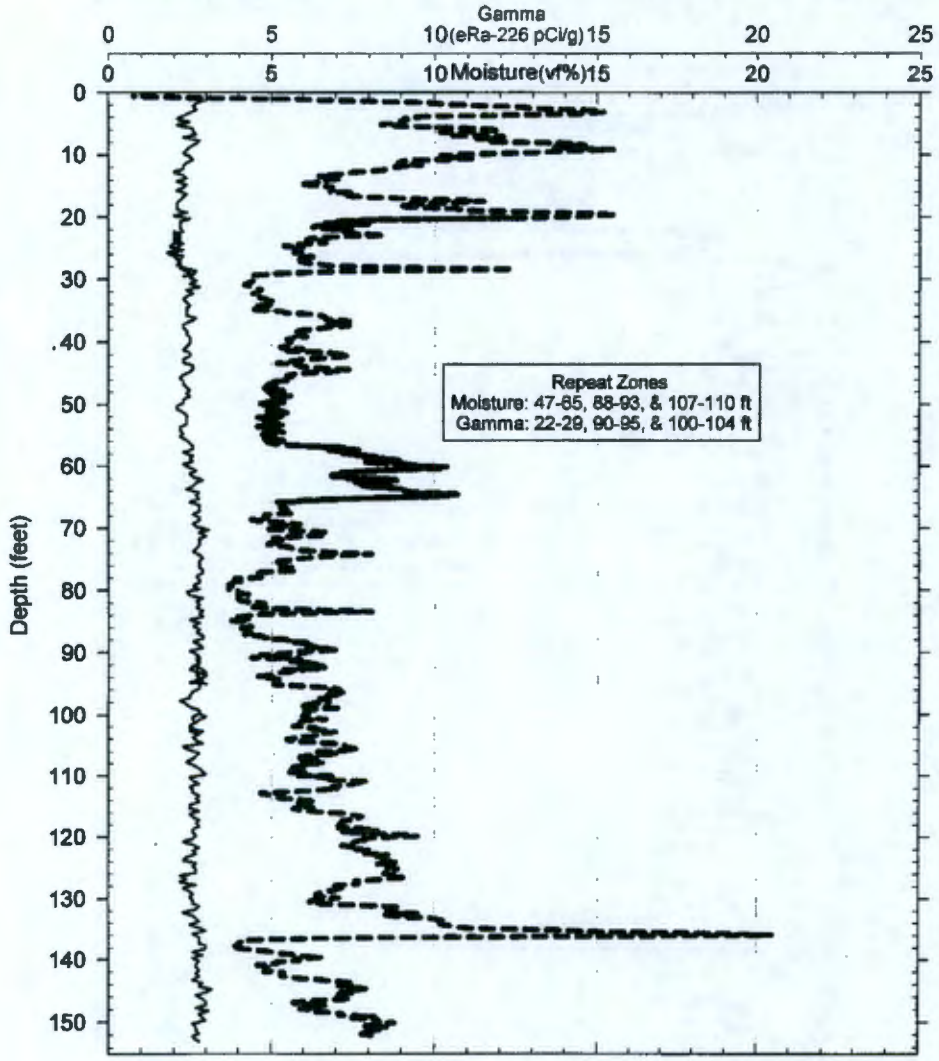
RPP-38406, Rev. 0

# Small Diameter - Gamma & Moisture Survey

Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-81
Probehole: C6397

Log Date: May 2008
Depth Ref: Ground Level



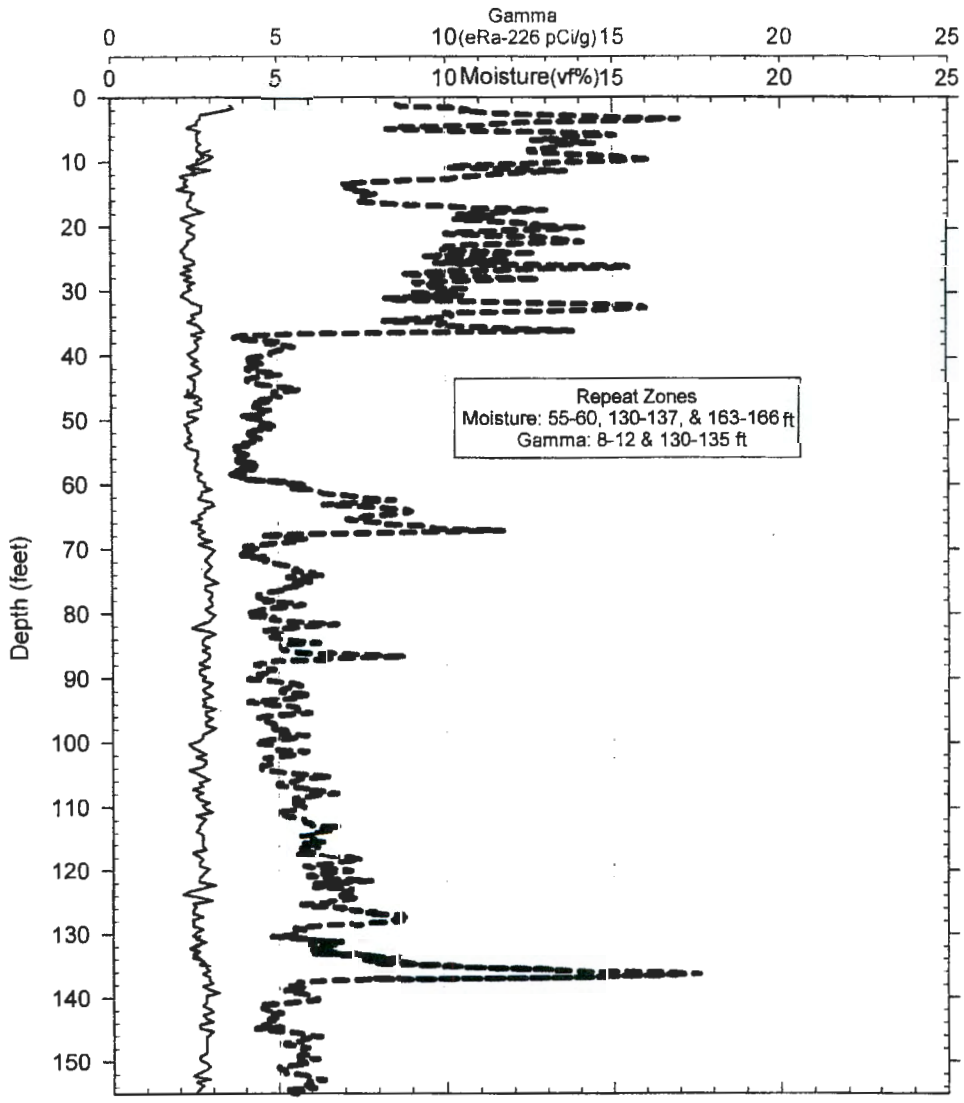

A-10

# Small Diameter - Gamma & Moisture Survey

Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-81
Probehole: C6399

Log Date: May 2008
Depth Ref: Ground Level



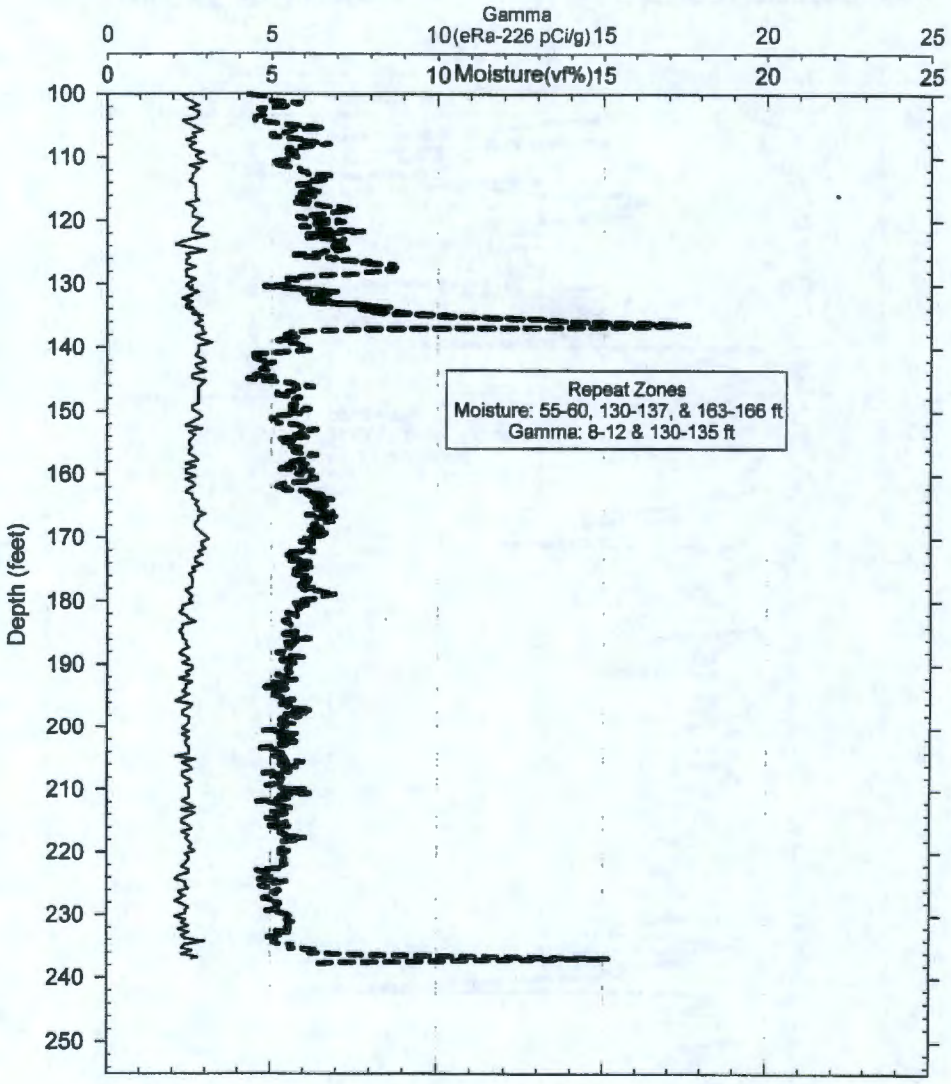
RPP-38406, Rev. 0

# Small Diameter - Gamma & Moisture Survey

Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-81
Probehole: C6399

Log Date: May 2008
Depth Ref: Ground Level



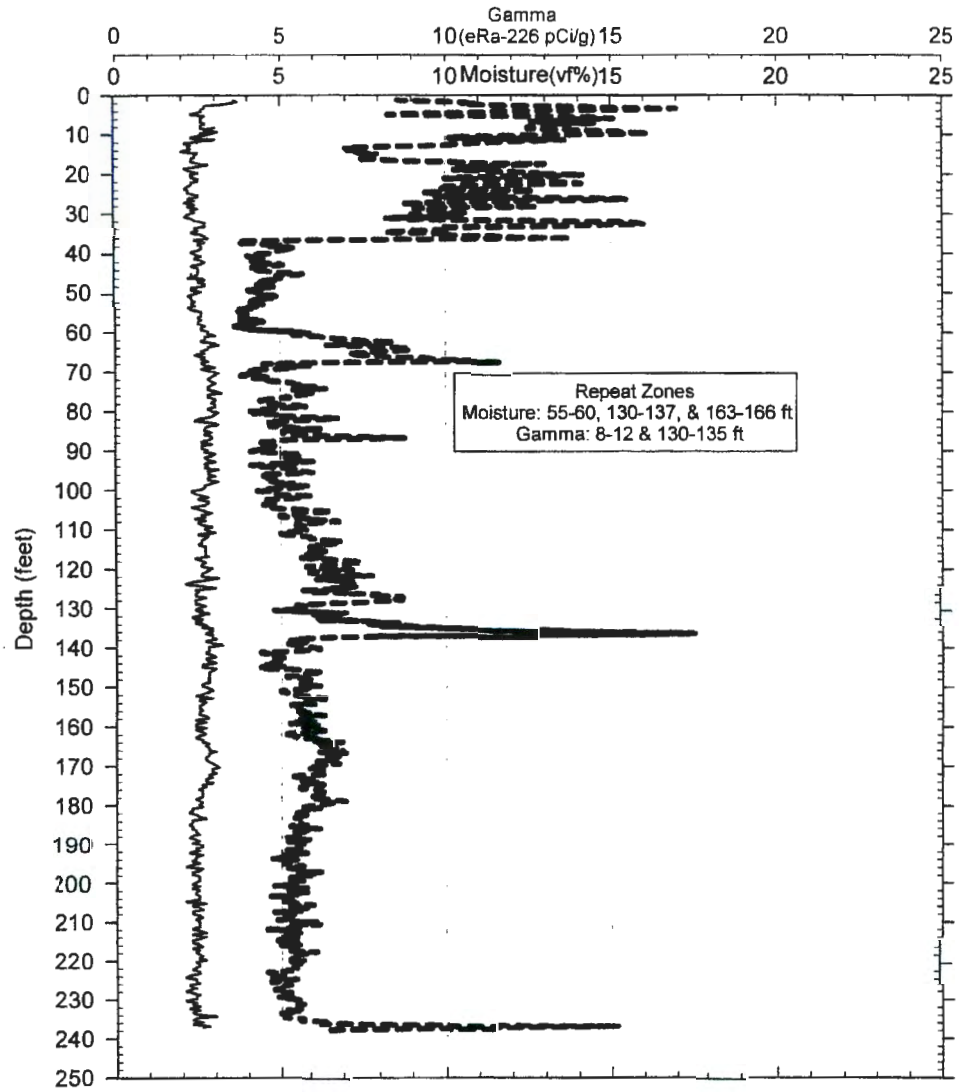

A-12

# Small Diameter - Gamma & Moisture Survey

Energy Solutions Federal Services & Pacific Northwest Geophysics

Project: UPR-200-E-81
Probehole: C6399

Log Date: May 2008
Depth Ref: Ground Level



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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** V08-004 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 - QC Samples **REV** 0

| | | | |
|---|---|---|---|
| **PROJECT** | C-Tank Farms | | |
| **PROGRAM/PROJECT TYPE** | Baseline Inform Other | | |
| **OPERABLE UNIT** | NONE | | |
| **REQUESTER** | SYDNOR, HA | **CHARGE CODES** | |
| **TASK MANAGER** | WATSON, DJ | | |
| **PROJECT COORDINATOR** | TRENT, SJ | | |
| **ESTIMATED START DATE** | 4/1/2008 | **SAMPLE AREA** | 200 East |
| **ESTIMATED COMPLETION DATE** | 5/1/2008 | **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 C6391 & C6406

**SAF REVISION COMMENT**

**COC COMMENT**

** Rinsate Samples

DATE OF PRINT 04/01/2008 SAF STATUS NONE STATUS DATE PAGE 1 of 2

# CH2M Hill Group
# SAMPLING AUTHORIZATION FORM

**SAF NUM** V08-004 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 - 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 04/01/2008 SAF STATUS NONE STATUS DATE PAGE 2 of 2

# CH2M Hill Group
# SAMPLING AUTHORIZATION FORM

**SAF NUM** V08-003 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 **REV** 0

| | | | |
|---|---|---|---|
| **PROJECT** | C-Tank Farms | | |
| **PROGRAM/PROJECT TYPE** | Baseline Inform Other | | |
| **OPERABLE UNIT** | NONE | | |
| **REQUESTER** | SYDNOR, HA | **CHARGE CODES** | |
| **TASK MANAGER** | WATSON, DJ | | |
| **PROJECT COORDINATOR** | TRENT, SJ | | |
| **ESTIMATED START DATE** | 4/1/2008 | **SAMPLE AREA** | 200 East |
| **ESTIMATED COMPLETION DATE** | 5/1/2008 | **MATRIX** | SOIL |
| **ESTIMATED NUMBER OF SAMPLES** | 25 | | |
| **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 C6391 & C6406

**SAF REVISION COMMENT**

**COC COMMENT**

** Each sample will consist of 3 sample liners.

# CH2M Hill Group
# SAMPLING AUTHORIZATION FORM

**SAF NUM** V08-003 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 **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 04/01/2008 SAF STATUS NONE STATUS DATE PAGE 2 of 2

# Sample Information Checklist for Hanford Clients/Samples

*(Please have client or sample owner complete to the best of their knowledge or provide the information obtained from the client.)*

**Client Name/Phone/Employer** CH2M Hill Hanford Group

**Checklist Prepared by** Harold Sydnor _____ 5/9/08
Print Name Signature Date

**Sample Description** 241-C Tank Farm UPR 200 E 81 or C5-151 soil samples
**Sample Tracking Nos.** (start/end numbers if in series) V08-003 and V08-004

1. Is the sample from a commercial chemical product, manufacturing chemical intermediate, or off-specification commercial chemical product (P or U Listed)? (See 40 CFR 261.33) ☐ Yes x No
   If so, what chemicals or waste codes? _____

2. Is the sample from an F or K listed source? (See 40 CFR 261.31 and 261.32). xYes ☐ No
   If so, what is the source and waste code? F-001 through F-005 spent Solvents

3. Mark any of the following physical and chemical characteristics or constituents (and associated waste code) you suspect to be present:

| | | | |
|---|---|---|---|
| ☐ Explosive (D003) | ☐ Pyrophoric (D003) | ☐ Shock Sensitive (D003) | ☐ Air Reactive (D003) |
| ☐ Oxidizer (D001) | ☐ Asbestos | ☐ Peroxide Former (D003) | ☐ Water Reactive (D003) |
| ☐ Sulfides (D003) | ☐ Cyanides (D003) | ☐ Corrosive Solids (WSC2) | ☐ Corrosive to Steel (D002) |
| ☐ Generates Toxic Gases in Water (D003) | ☐ Halogenated Hydrocarbons (WP01 or WP02) | ☐ Polycyclic Aromatic Hydrocarbons (WP03) | |

☐ Ignitable (D001); Flashpoint = _____ ☐ Corrosive (D002); pH = _____

4. Mark any of the following constituents (and associated waste code) you suspect to be present (40 CFR 261.24):

| | | | |
|---|---|---|---|
| ☐ Arsenic (D004) | ☐ Benzene (D018) | ☐ 2,4-Dinitrotoluene (D030) | ☐ Nitrobenzene (D036) |
| ☐ Barium (D005) | ☐ Carbon tetrachloride (D019) | ☐ Endrin (D012) | ☐ Pentachlorophenol (D037) |
| ☐ Cadmium (D006) | ☐ Chlordane (D020) | ☐ Heptachlor (& its epoxide) (D031) | ☐ Pyridine (D038) |
| x Chromium (D007) | ☐ Chlorobenzene (D021) | ☐ Hexachlorobenzene (D032) | ☐ Tetrachloroethylene (D039) |
| x Lead (D008) | ☐ Chloroform (D022) | ☐ Hexachlorobutadiene (D033) | ☐ Toxaphene (D015) |
| ☐ Mercury (D009) | ☐ Cresol, o-, m-, or p- (D023-D025) | ☐ Hexachloroethane (D034) | ☐ Trichloroethylene (D040) |
| ☐ Selenium (D010) | ☐ 2,4,D (D016) | ☐ Lindane (D013) | ☐ 2,4,5-Trichlorophenol (D041) |
| ☐ Silver (D011) | ☐ 1,4-Dichlorobenzene (D027) | ☐ Methoxychlor (D014) | ☐ 2,4,6-Trichlorophenol (D042) |
| | ☐ 1,2-Dichloroethane (D028) | ☐ Methyl ethyl ketone (D035) | ☐ 2,4,5-TP (Silvex) (D017) |
| | ☐ 1,1-Dichloroethylene (D029) | | ☐ Vinyl chloride (D043) |

5. List any known RCRA Underlying Hazardous Constituents: F-001 through F-005 spent solvents

6. Are there any state hazardous waste codes associated with the sample? ☐ Yes ☐ No
   If so, please list: _____

7. Is the sample known to contain >2 ppm PCBs? ☐ Yes x No
   If so, is the sample concentration: ☐ <50 ppm ☐ >50 ppm?
   If < 50 ppm, what is the source of PCBs (if known)? _____

8. Is the sample radioactive? x Yes ☐ No
   If so, list any known isotopes, activities, or dose rates associated with the sample:
   Cesium-137, technetium-99, strontium-90 and uranium-238 (cladding waste)

**To be completed by PNWD research or laboratory staff:**

**PNWD project#/workpkg#** _____

1.8/2h02e010.doc (9/99)

30 Project 241-C Unplanned Release Direct push Notebook No. DTS-SAWS-H97
Continues from Page Ø

SAF # V08-003/V08-004 5-13-08
LOCATION: WEST SIDE OF C-FARM (INSIDE FARM) 200 EAST AREA
CACN: 121800/ES10 RWP: C0460 REV2
PERSONNEL: K. OLSON
M. EHRGOTT } DRILLERS - Energy Solutions
M. REPKO
S. SNOOK } NCO'S - CHG
I. VILLARREAL
P. TEMPLETON } HPT'S - CHG
J. CLAYTON
F.M. HALL - NCO (LEAD SAMPLER) - FH
K.B. HULSE - NCO (LEAD) - FH

1000 WENT TO 2704 HV to ACE
1015 ONSITE signed ATTENDENCE sheet + AJHA BORE HOLE: C6394
1025 SAMPLER pushed 9'-11' NOT much SAMPLE was obtained possibly Due contents being VERY loose the bottom Fell out

| DATE: 5-13-08 TIME: 1025 | | SAMPLE #: B1VJ54 | | |
|---|---|---|---|---|
| COC#: V08-003-001 BOREHOLE #: C6394 | | Interval: 9'-11' | | |
| | shoe | A | B | C |
| Depth | 11' - 10.5' | 10.5' - 10' | 10' - 9.5' | 9.5' - 9' |
| % RECOVERY | Ø | Ø | 100% | 30% |
| COMMENTS: SANDY, SALT + PEPPER, little AMOUNT OF CLAY, MOIST | | | | |

VOID SPACE ON C-LINER WAS PACK with plastic BAGS
1130 SAMPLER PUSHED 15-17' This was A better push AGAIN possibly bottom Fellout slightly.

| DATE: 5-13-08 TIME: 1130 | | SAMPLE #: B1VJ55 | | |
|---|---|---|---|---|
| COC#: V08-003-002 BOREHOLE #: C6394 | | Interval: 15'-17' | | |
| | Shoe | A | B | C |
| Depth | 17' - 16.5' | 16.5' - 16' | 16' - 15.5' | 15.5' - 15' |
| % RECOVERY | 40% | — | 100% | 75% |
| COMMENTS: SANDY, SALT + PEPPER, Little AMOUNT OF CLAY, MOIST | | | | |

1230 SAMPLES TRANSPORTED to 6269 Bldg to be placed in COOLER
TWO FORMS ATTACHED This page

Continued on Page 81

Read and Understood By

F.M. HALL
Signed

5-13-08
Date

Signed

Date

Project 241-C Unplanned Release Direct push Notebook No. DTS-SAWS-H97 8
Continues from Page 80

5-14-08
1200 Sampler pushed 26'-28'
1230 onsite Bore Hole # C6394

| DATE: 5-14-08 TIME: 1200 | | | SAMPLE #: B1VJ56 | |
|---|---|---|---|---|
| COC#: V08-003-003 | BOREHOLE #: C6394 | | Interval: 26'-28' | |
| | shoe | A | B | C |
| Depth | 28' - 27.5' | 27.5' - 27' | 27' - 26.5' | 26.5' - 26' |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: Gravel, sandy, salt/pepper, moist | | | | |

1330 Left Drill site enroute to 6269 Bldg to place sample in cooler
5-15-08
1000 Sampler pushed 36'-38'
1030 onsite Bore Hole # C6394

| DATE: 5-15-08 TIME: 1000 | | | SAMPLE #: B1VJ57 | |
|---|---|---|---|---|
| COC#: V08-003-004 | BOREHOLE #: C6394 | | Interval: 36'-38' | |
| | shoe | A | B | C |
| Depth | 38 - 37.5' | 37.5' - 37' | 37' - 36.5' | 36.5' - 36' |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: sandy, salt + pepper slight gravel, moist | | | | |

1120 Left well site enroute to 2225 LAB 200w with this sample, sample is being move on a Blue card
1130 Sample Received Att 2225 Lab By Sample custodian RT Steele
1145 Enroute to 6269 Bldg to gather samples to be taken to 325 PNNL Lab 300 Area
1230 After gathering samples from cooler, NCO package samples to be shipped to 325 lab.
1320 Samples Received At 325 LAB By D. Smith
5-19-08
0945 Sampler pushed 42'-44'
1100 onsite Bore # C6394 KB Hulse obtained this sample after going to 2704 HU to ACE. RWP: C0460 REV 2 upon arrival NCO signed Attendence sheet + ASHA.
Two Forms Attached This page

Continued on Page 82

Read and Understood By

E.M. Hall 5-19-08
Signed Date Signed Date

82
Project 241-C Unplanned Release Direct Push Notebook No. DTS-SAWS-H97
Continues from Page 81

5-19-08

| DATE: 5/19/08 TIME: 0945 | | | SAMPLE #: B1VJ58 | |
|---|---|---|---|---|
| COC#: V08-003-005 BOREHOLE #: C6394 Interval: 42-44 | | | | |
| | shoe | A | B | C |
| Depth | 44 – 43.5' | 43.5' – 43' | 43' – 42.5' | 42.5' – 42' |
| % RECOVERY | 100 | 100 | 100 | 80 |
| COMMENTS: Wet silt/SAND all the way through | | | | |

1300 EnRoute to 325 LAB with sample

5-22-08

1100 Sampler pushed 59' – 61'

1200 on site BORE HOLE: C6394

| DATE: 5-22-08 TIME: 1100 | | | SAMPLE #: B1VJ59 | |
|---|---|---|---|---|
| COC#: V08-003-006 BOREHOLE #: C6394 Interval: 59' – 61' | | | | |
| | Shoe | A | B | C |
| Depth | 61' – 60.5' | 60.5' – 60' | 60' – 59.5' | 59.5' – 59' |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: Shoe COARSE SAND + GRAVEL DRY, A+B salt & Pepper SAND, C DAMP silt on top salt & pepper SAND on Bottom | | | | |

1300 EnRoute to 6269 Bldg to place samples in cooler

5-23-08

1000 Sampler pushed 75' – 77'

1100 on site BORE HOLE: C6394

| DATE: 5/23/08 TIME: 1000 | | | SAMPLE #: B1VJ60 | |
|---|---|---|---|---|
| COC#: V08-003-007 BOREHOLE #: C6394 Interval: 75' – 77' | | | | |
| | Shoe | A | B | C |
| Depth | 77' – 76.5' | 76.5' – 76' | 76' – 75.5' | 75.5' – 75' |
| % RECOVERY | 100 % | 100 % | 100 % | 100 % |
| COMMENTS: Dry SAND | | | | |

1200 Froute to 6269 Bldg to place samples in cooler
THREE Forms attached this page

Continued on Page 83

Read and Understood By

| Em Hall | 5-23-08 | | |
|---|---|---|---|
| Signed | Date | Signed | Date |

Project 241-C Unplanned Release Direct Push Notebook No. DTS-SAWS-H97

Continues from Page 82

5-27-08

1330 SAMPLER pushed 95'-97'

1400 ONSITE BORE Hole C6394 AFTER getting Aced At 2709 HV

| DATE: 5/27/08 | TIME: 1330 | | SAMPLE #: B1VJ61 | |
|---|---|---|---|---|
| COC#: V08-003-008 | BOREHOLE #: C6394 | | Interval: 95-97 | |
| | Shoe | A | B | C |
| Depth | 97'-96.5' | 96.5'-96' | 96'-95.5' | 95.5'-95' |
| % RECOVERY | 100 % | 100 % | 100 % | 100 % |
| COMMENTS: Dry Salt & Pepper SAND, Top of C liner mostly SAND | | | | |

1430 ENRoute to 6269 Bldg to place samples IN cooler to ship to 325 BLDG BeFore close oF Buisiness

5-29-08

1010 SAMPLER pushed 133'-135'

1100 ON Site Bore Hole C6394

| DATE: 5-29-08 | TIME: 1010 | | SAMPLE #: B1VJ62 | |
|---|---|---|---|---|
| COC#: V08-003-009 | BOREHOLE #: C6394 | | Interval: 133'-135 | |
| | shoe | A | B | C |
| Depth | 135'-134.5' | 134.5'-134' | 134'-133.5' | 133.5'-133' |
| % RECOVERY | 100 % | 100% | 100% | 100% |
| COMMENTS: Salt & pepper SAND / slightly moist | | | | |

1230 ENRoute to 6269 Bldg to drop oFF sampler to be cleaned AND gather SAMPLES FOR Shipment to 325 LAB

1315 ENRoute to 325 lab to drop oFF samples

6-5-08

0920 SAMPLER pushed 168'-170'

1000 ON site BORE HOLE C6394

Due to WEATHER CONDITIONS is the REASON FOR A long SPAN between SAMPLES, Also the Depth to be driven Then pulling SAMPLE FROM Borehole. This SAMPLE is being Accomplied with AN Equipment BLANK. The SAMPLE is scheduled FOR A quick TURN AROUND AT 222S LAB FOR ANALYSIS!

1200 SAMPLES being delivered to 222S LAB AFter picking up Additional paper work.

Continued on Page 84

Read and Understood By

FM Hall 6-5-08

Signed Date Signed Date

84 Project 241-C Unplanned Release Direct Push Notebook No. DTS-SAWS-H97
Continues from Page 83

| DATE: 6-5-08 | TIME: 0920 | SAMPLE #: B1VJ63 | |
|---|---|---|---|
| COC#: V08-003-010 | BOREHOLE #: C6394 | Interval: 168'-170' | |
| | Shoe | A | B | C |
| Depth | 170' - 169.5' | 169.5' - 169' | 169' - 168.5' | 168.5' - 168' |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: SALT + PEPPER, SANDY, SILTY CLAY, DRY | | | | |

6-9-08
1010 SAMPLER pushed 170'-172'
1100 ON SITE BORE HOLE C6394
AFTER getting ACED AT 2704 HV, Again like sample TAKEN ON 6-5-08, Due to Extreme weather conditions (High wind + RAIN) WAS unable to obtain SAMPLE. This SAMPLE Also is ACCOMP. with AN Equipment BLANK. The SAMPLE is Also scheduled FOR quick turn AROUND AT 325 Bldg PNNL LAB, FOR ANALYSIS.
1340 SAMPLES being delivered to 325 LAB AFTER picking up Additional paper work.

| DATE: 6-9-08 | TIME: 1010 | SAMPLE #: B1VJ64 | |
|---|---|---|---|
| COC#: V08-003-011 | BOREHOLE #: C6394 | Interval: 170'-172' | |
| | Shoe | A | B | C |
| Depth | 172' - 171.5' | 171.5' - 171' | 171' - 170.5' | 170.5' - 170' |
| % RECOVERY | 100% | 100% | 100% | 100% |
| COMMENTS: SALT + PEPPER SANDY, SILT, DRY | | | | |

This concludes unplanned Release Direct push inside C-FARM.
Two FORMS ATTACHED This page

6-9-08

Continued on Page

Read and Understood By

F M Hall 6-9-08
Signed Date Signed Date

| CH2M HILL Group | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | V08-003-001 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: FM Hall | COMPANY CONTACT: WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: Borehole | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.: V08-003 | AIR QUALITY | |
| ICE CHEST NO. | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH: 9'-11' | COA | METHOD OF SHIPMENT: Govt. 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 |
|---|---|---|---|---|---|---|---|
| ~~B1VJ54~~ | | ~~S~~ | | | ~~1X60mL sG~~ | ~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~ | ~~Cool~4C~~ |
| ~~B1VJ54A~~ | | ~~S~~ | | | ~~1X1000g Liner~~ | ~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~ | ~~Cool~4C~~ |
| B1VJ54B | | S | 5-13-08 | 1025 | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ54C | | 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 |
| FM Hall [signature] | 1320 5-15-08 | Bsmith [signature] | 1320 5-15-08 |
| 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
(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**

V08-003-002 PAGE 1 OF 1

| | | | |
|---|---|---|---|
| COLLECTOR: F M HALL | COMPANY CONTACT: WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ |
| PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days | | |
| SAMPLING LOCATION: Borehole | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.: V08-003 |
| AIR QUALITY: -- | | | |
| ICE CHEST NO. | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH: 15'-17' | COA |
| METHOD OF SHIPMENT: Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ55 | | S | 5-13-08 | 1130 | 1X250mL aG | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| ~~B1VJ55A~~ | | ~~S~~ | | | ~~1X1000g Liner~~ | ~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~ | ~~Cool~4C~~ |
| B1VJ55B | | S | 5-13-08 | 1130 | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ55C | | S | ⊥ | ⊥ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |

| CHAIN OF POSSESSION | DATE/TIME | SIGN/ PRINT NAMES: RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM: F.M. HALL | 5-15-08 1320 | D Smith | 1320 5-15-08 |
| 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
(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 | | | V08-003-003 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR: F.M. Hall | COMPANY CONTACT: WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ | PRICE CODE: 8N | DATA TURNAROUND: 45 Days / 45 Days |
| SAMPLING LOCATION: Borehole | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.: V08-003 | AIR QUALITY | |
| ICE CHEST NO. | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH: 26' - 28' | COA | METHOD OF SHIPMENT: Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ56 | | S | 5-14-08 | 1200 | 1X250mL aG | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ56A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ56B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ56C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM: F.M. Hall | DATE/TIME: 1320 5-15-08 | RECEIVED BY/STORED IN: D. Smith | DATE/TIME: 1320 5-15-08 |
| 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
(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 | | | V08-003-004 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM Hall | COMPANY CONTACT<br>WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNARDUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>Borehole | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.<br>V08-003 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH<br>36'-38' | COA | METHOD OF SHIPMENT<br>Govt. Vehicle | |
| SHIPPED TO<br>~~5-15-08~~ 2225 LAB<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 |
|---|---|---|---|---|---|---|---|
| B1VJ57 | | S | 5-15-08 | 1000 | 1X250mL aG | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ57A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ57B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ57C | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>FM HALL | DATE/TIME<br>5-15-08 1130 | RECEIVED BY/STORED IN<br>RA Steele | DATE/TIME<br>5-15-08 1130 | (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 | V08-003-005 | PAGE 1 OF 1 |
|---|---|---|---|

| COLLECTOR | COMPANY CONTACT | TELEPHONE NO. | PROJECT COORDINATOR | PRICE CODE 8N | DATA TURNAROUND |
|---|---|---|---|---|---|
| KB Hulse | WATSON, DJ | | TRENT, SJ | AIR QUALITY ☐ | 45 Days / 45 Days |
| **SAMPLING LOCATION** Borehole C6394 | **PROJECT DESIGNATION** "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | **SAF NO.** V08-003 | | |
| **ICE CHEST NO.** | **FIELD LOGBOOK NO.** | **ACTUAL SAMPLE DEPTH** 42-44 | **COA** | **METHOD OF SHIPMENT** Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ58 | | S | 5/19/08 | 0945 | 1X250mL ~~250~~ | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ58A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ58B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ58C | | 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 |
|---|---|---|---|
| KB Hulse | 5/19/08 1400 | DSmith | 5.19.08 1400 |
| | | | |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**
(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 | | | V08-003-006 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>KB Hulse | COMPANY CONTACT<br>WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>Borehole C6394 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.<br>V08-003 | | |
| ICE CHEST NO.<br>C10 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH<br>59-61' | COA | METHOD OF SHIPMENT<br>Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ59 | | S | 5/22/08 | 1100 | 1X250mL ~~25~~ 5 | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ59A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ59B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ59C | | 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 KB Hulse | 5/28/08 1445 | C Jones | 5/28/08 1445 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |

SPECIAL INSTRUCTIONS
(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 | | | V08-003-007 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR K. B. Hulse | COMPANY CONTACT WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR TRENT, SJ | PRICE CODE 8N | DATA TURNAROUND |
| SAMPLING LOCATION Borehole C6394 | PROJECT DESIGNATION "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO. V08-003 | AIR QUALITY ☐ | 45 Days / 45 Days |
| ICE CHEST NO. C-10 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH 75-77 | COA | METHOD OF SHIPMENT Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ60 | | S | 5/23/08 | 1000 | 1X250mL ~~ag~~ p | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ60A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ60B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ60C | | 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 K. B. Hulse | DATE/TIME 5-28-08 1445 | RECEIVED BY/STORED IN C. Torri | DATE/TIME 5/28/08 1445 | (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 | | | V08-003-008 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>KB Hulse | COMPANY CONTACT<br>WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>Borehole C6394 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.<br>V08-003 | | |
| ICE CHEST NO.<br>C10 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH<br>95-97 | COA | METHOD OF SHIPMENT<br>Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ61 | | S | 5/27/08 | 1330 | 1X250mL ~~GP~~ | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ61A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ61B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ61C | | 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>KB Hulse KB Hulse | DATE/TIME<br>5/28/08 1445 | RECEIVED BY/STORED IN<br>C. Torri | DATE/TIME<br>5/28/08 1445 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |

SPECIAL INSTRUCTIONS
(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**

V08-003-009 PAGE 1 OF 1

| | | | |
|---|---|---|---|
| COLLECTOR: FM HALL | COMPANY CONTACT: WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR: TRENT, SJ |
| SAMPLING LOCATION: Borehole | PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.: V08-003 |
| ICE CHEST NO.: C 10 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH: 133'-135' | COA |
| SHIPPED TO: PNNL Building 325 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. |

PRICE CODE: 8N
AIR QUALITY:
DATA TURNAROUND: 45 Days / 45 Days
METHOD OF SHIPMENT: Govt. Vehicle

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 |
|---|---|---|---|---|---|---|---|
| B1VJ62 | | S | 5-29-08 | 1010 | 1X250mL aG | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ62A | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ62B | | S | | | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ62C | | 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 |
|---|---|---|---|
| FM HALL [signature] | 1355 5-29-08 | M. Vaunsen M. Vale | 1355 5-29-08 |
| 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**
(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 | | | V08-003-010 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM Hall | COMPANY CONTACT<br>WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>Borehole | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.<br>V08-003 | | |
| ICE CHEST NO.<br>C10 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH<br>168'-170' | COA | METHOD OF SHIPMENT<br>Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ63 | | S | 6-5-08 | 0920 | 1X250mL aG | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ63A | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ63B | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ63C | | 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>1230 6-5-08 | RECEIVED BY/STORED IN<br>R Stede | DATE/TIME<br>1230 6-5-08 | (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 | | | V08-003-011 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>FM Hall | COMPANY CONTACT<br>WATSON, DJ | TELEPHONE NO. | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>Borehole | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 | | SAF NO.<br>V08-003 | | |
| ICE CHEST NO.<br>SAWS-107 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH<br>170'-172' | COA | METHOD OF SHIPMENT<br>Govt. 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 |
|---|---|---|---|---|---|---|---|
| B1VJ64 | | S | 6-9-08 | 1010 | 1X250mL aG | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ64A | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ64B | | S | ↓ | ↓ | 1X1000g Liner | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
| B1VJ64C | | 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<br>1340 6-9-08 | RECEIVED BY/STORED IN<br>DSmith | DATE/TIME<br>1340 6-9-08 |
| 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
(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 | | | V08-004-001 | 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>C6394 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 - QC Samples | | SAF NO.<br>V08-004 | | |
| ICE CHEST NO.<br>C10 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH | COA | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | |
| SHIPPED TO<br>~~PNNL Building 325~~ 2225 LAB 6-2-08 | OFFSITE PROPERTY NO.<br>N/A | | BILL OF LADING/AIR BILL NO.<br>N/A | | |

| 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 |
|---|---|---|---|---|---|---|---|
| B1W154 | | S | 6-2-08 | 0920 | 1X1000mL aG | 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>6-5-08 1230 | RECEIVED BY/STORED IN<br>RJ Steele | DATE/TIME<br>6-5-08 1230 | (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 | | | V08-004-002 | 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>C6394 | PROJECT DESIGNATION<br>"C" Tank Farm Soil Sampling - Boreholes C6391 & C6406 - QC Samples | | SAF NO.<br>V08-004 | | |
| ICE CHEST NO.<br>GWS-019 | FIELD LOGBOOK NO. | ACTUAL SAMPLE DEPTH | 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 S400.5 (1990/1993)

| SAMPLE NO. | LAB ID | MATRIX* | SAMPLE DATE | SAMPLE TIME | NO./TYPE CONTAINER(S) | ANALYSIS | PRESERVATION |
|---|---|---|---|---|---|---|---|
| B1W155 | | S | 6-2-08 | 0930 | 1X1000mL aG | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | Cool~4C |
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| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | |
|---|---|---|---|
| RELINQUISHED BY/REMOVED FROM<br>F.M. HALL | DATE/TIME<br>6-9-08 | RECEIVED BY/STORED IN<br>DSmith | DATE/TIME<br>6-9-08 1340 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |

**SPECIAL INSTRUCTIONS**
(1)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 |

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# APPENDIX G

# WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTS

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ENERGYSOLUTIONS

March 17, 2008 MGG-08-5022

Sate of Washington
Department of ecology
Water Resources Program
Well Drilling Unit
Post Office Box 47600
Olympia, Washington 98504-7600

Subject: Notice of Intent to Construct and Install Probes in Geotechnical Borings

To Whom It May Concern,

Attached is the Notice of Intent to Construct (S27644) Geotechnical Soil Borings. This Notice of Intent form has been completed with information pertaining to 16 borings that will be located on the Hanford Site near the intersection of 7th Street and Buffalo Avenue located in the 200 East Area, within the northwest corner of the 241-C Tank Farm.

These borings are designated as C6391 through C6405 and are being placed in support of the vadose characterization scope. Placement will be performed under the Notice of Intent to Construct Start Card S27644. A majority of these borings will subsequently be decommissioned upon acquisition of geophysical data collection and selective soil sample collection. Selected borings will be utilized for placement of subsurface soil resistivity probes and such construction will be documented with the applicable Well Completion Reports. Probe holes not utilized for probe placement will be documented on the appropriate Decommissioning Report forms.

If you have any questions, please contact me at (509) 375-9587.

Sincerely

Martin G. Gardner, Manager
Remediation and Well Services

jmt

Attachments

CH2M HILL - H. A. Sydnor

FH - G. G. Kelty

Energy*Solutions* - K. D. Reynolds
D. E. Skoglie
MGG File/LB

2345 Stevens Drive, Suite 240 • Richland, WA 99354
509.371.8006 • Fax: 509.371.1906 • 1.888.532.1330 • www.energysolutions.com

ENERGYSOLUTIONS

MGG-08-5022

ATTACHMENT

**Notice of Intent to Construct a Geotechnical Soil Boring**

**Consisting of 2 pages including cover sheet**

WASHINGTON STATE DEPARTMENT OF ECOLOGY

# NOTICE OF INTENT TO CONSTRUCT A

Notification Number S 27644

*Please check one:* ☒ GEOTECH SOIL BORING
☐ SOIL SAMPLING (CONTAMINANTS)
☐ VAPOR SAMPLING

**This form MUST BE RECEIVED by the Department of Ecology 72 HOURS BEFORE you construct a well.**

Submit one form for each job site. **Mail this form to the Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.** Instructions for filling out this form are printed on the back.

**NOTE: PLEASE PRINT ALL ANSWERS. PROCESSING YOUR NOTICE OF INTENT MAY BE DELAYED IF ALL FIELDS OUTLINED IN THE BOXES ARE NOT FILLED IN COMPLETELY.**

1. Property Owner U.S. Department of Energy Phone No. (509) 373-9630
   Address (include city, state, zip) 825 Jadwin Ave., Richland, Washington, 99352
2. Consulting Firm (if different from #1): CH2M Hill Phone No. (509) 373-3967
   Address (include city, state, zip) Richland, Washington, 99352

01-Adams, 02-Asotin, 03-Benton, 04-Chelan, 05-Clallam, 06-Clark, 07-Columbia, 08-Cowlitz, 09-Douglas, 10-Ferry, 11-Franklin, 12-Garfield, 13-Grant, 14-Grays Harbor, 15-Island, 16-Jefferson, 17-King, 18-Kitsap, 19-Kittitas, 20-Klickitat, 21-Lewis, 22-Lincoln, 23-Mason, 24-Okanogan, 25-Pacific, 26-Pend Oreille, 27-Pierce, 28-San Juan, 29-Skagit, 30-Skamania, 31-Snohomish, 32-Spokane, 33-Stevens, 34-Thurston, 35-Wahkiakum, 36-Walla Walla, 37-Whatcom, 38-Whitman, 39-Yakima

3. Print COUNTY NAME of well location (*DO NOT ABBREVIATE*) Benton
4. Well Location: SW 1/4-1/4 of the NE 1/4 Section 2 Township 12N Range 26 EWM or WWM (circle one)
5. Total number of borings to be constructed sixteen (16)
6. Approx construction start date March 26, 2008

Latitude and longitude (if available) NOTE: 1/4-1/4, 1/4, section, township and range are REQUIRED.

Lat Degrees _____ Lat Time _____
Long Degrees _____ Long Time _____ Horizontal Collection Method _____

7. Well Site Street Address Hanford, 200 East, SW corner inside C-Tank-farm
8. Tax parcel number N/A

9. Contractor L & I Registration No. DURATPS940K5
10. Well Drilling Company Name Energy Solutions Phone No. (509) 375-9591
11. Well Driller Name Kelly C. Olson License No. 1217

12. SEND THE ENTIRE FORM. The bottom portion of this notice will be validated in our office and sent back to the name and address contained on the address label. This is the proof of notification. Please fill out the portion below CAREFULLY.

NOTE: Please copy the Notification Number (located in the upper and lower right corner) and keep in a safe place. Please reference this number when communicating with the Department of Ecology.

---

**This notification number must be provided to your well driller:** S 27644

RETURN NAME AND MAILING ADDRESS

Name Kelly C. Olson
Mailing Address 2345 Stevens dr.
City Richland State Wa. Zip 99352

Client Name _____

[redacted]

ECY 040-55 (Rev. 10/02)

Notification Number
A 118507

# 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)*

| | | |
|---|---|---|
| O Water Well ($50.00) | | Rev. Code: 027-WEL8-02-87-000108 |
| O Resource Protection ($20.00 ea) | How many? | Rev. Code: 027-WEL9-02-87-000109 |
| O Ground Source Heat pump ($20.00 ea) | How many? | Rev. Code: 027-WL10-02-87-000110 |
| O Grounding Well ($20.00 ea) | How many? | Rev. Code: 027-WL10-02-87-000110 |
| ● Geotech Soil Boring (No Fee) | How many? 16 | |
| O Soil Sampling (No Fee) | How Many? | |
| O Environmental Investigation Well (No Fee) | How Many? | |

Latitude and longitude (if available) NOTE: 1/4, 1/4, section, township and range are REQUIRED.
Lat Degrees _____ Lat Time _____
Long Degrees _____ Long Time _____ Horizontal Collection Method _____

6. Well Site Street Address Hanford Site, 200 East, C Tank Farm
7. Notice of Intent No. of well being decommissioned and Unique Well ID Tag # (if applicable) _____
8. Tax parcel number _____ 9. Approx. decommissioning start date April 15, 2008
10. Contractor L & I Registration No. 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 118507

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)

ENERGYSOLUTIONS

August 18, 2008 MGG-08-5144

State of Washington
Department of Ecology
Nuclear Waste Program
Hanford Project
3100 Port of Benton Boulevard
Richland, Washington 99354

Subject: Water Well Reports

Dear Department of Ecology,

Attached are Water Well Report forms addressing completion/decommissioning operations for six geotechnical borings. The Water Well report forms have been completed with information from field operations (reference Notice of Intent Start Card S27644 and Abandonment Start Card A118507). These geotechnical borings are located on the Hanford Site, 200 East Area, C Tank Farm.

These geotechnical borings are designated as C6391, C6393, C6395, C6397, C6399, and C6394. Soil sampling borings are even numbers. Geophysical logging was conducted in odd numbered borings. Resistivity probes were installed in borings C6395 and C6399.

The fractional section system topographical location for these geotechnical borings is SW ¼ NE ¼, Section 2, Township 12N, Range 26EWM

If you have any questions, please contact me at 375-9587.

Very truly yours,

M. G. Gardner, Manager
Remediation and Well Services

jmt

Attachments

CHG - H. A. Sydnor

FH - G. G. Kelty

Energy*Solutions* - K. D. Reynolds
D. E. Skoglie
R. Z. Steffler
MGG File/LB

2345 Stevens Drive, Suite 240 • Richland, WA 99354
509.371.8006 • Fax: 509.371.1906 • 1.888.532.1330 • www.energysolutions.com

ENERGYSOLUTIONS

MGG-08-5144

ATTACHMENT

Water Well Reports

Consisting of 6 pages
including cover sheet

# 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* A118507

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C6393

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 242 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 242 ft.

**Perforations:** ☐ Yes ☒ No
Type of perforator used ____
SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

**Screens:** ☐ Yes ☒ No ☐ K-Pac Location ____
Manufacturer's Name ____
Type ____ Model No. ____
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

**Gravel/Filter packed:** ☐ Yes ☒ No Size of gravel/sand ____
Materials placed from ____ ft. to ____ ft.

**Surface Seal:** ☐ Yes ☒ No To what depth? ____ ft.
Material used in seal ____
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

**PUMP:** Manufacturer's Name ____
Type: ____ H.P. ____

**WATER LEVELS:** Land-surface elevation above mean sea level ____ ft.
Static level ____ ft. below top of well. Date ____ N/A
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ cap, valve, etc.)

**WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

*Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)*

| Time | Water Level | Time | Water Level | Time | Water Level |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
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.** S27644
Unique Ecology Well ID Tag No. N/A
Water Right Permit No. N/A
Property Owner Name U.S. Department of Energy
Well Street Address 825 Jadwin Ave.
City Richland County Benton
Location SW1/4-1/4 NE1/4 Sec 2 Twn 12N R 26

EWM ☒ Or WWM ☐

**Lat/Long** (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____
Long Deg ____ Min ____ Sec ____

**CONSTRUCTION OR DECOMMISSION PROCEDURE**

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

| MATERIAL | FROM | TO |
|---|---|---|
| Casing was drove utilizing a | 0 | 242.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| Borehole was drove vertical. | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| The tubing was back-pulled | 242.0 | 0.0 |
| and boring decommissioned | | |
| with 11.3 sks bentonite | | |
| crumbles. | | |
| NOTE 1: This boring is C6393 | | |
| located on the Hanford Site, | | |
| UPR-81 (C Tank Farm) | | |

Start Date 04/14/08 Completed Date 07/08/08

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 08/06/08

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* A118507

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C6391

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 152 ft. Depth of completed well N/A ft.

**CONSTRUCTION DETAILS**

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 152 ft.

**Perforations:** ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

**Screens:** ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

**Gravel/Filter packed:** ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

**Surface Seal:** ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

**PUMP:** Manufacturer's Name ____

Type: ____ H.P. ____

**WATER LEVELS:** Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well 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.** S27644

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ■ Or WWM ☐

**Lat/Long** (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

**CONSTRUCTION OR DECOMMISSION PROCEDURE**

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

| MATERIAL | FROM | TO |
|---|---|---|
| Casing was drove utilizing a | 0 | 152.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| Borehole was drove vertical. | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| The tubing was back-pulled | 152.0 | 0.0 |
| and boring decommissioned | | |
| with 6.2 sks bentonite | | |
| crumbles. | | |
| NOTE 1: This boring is C6391 | | |
| located on the Hanford Site, | | |
| UPR-81 (C Tank Farm) | | |

Start Date 05/01/08 Completed Date 07/14/08

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 C. 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 08/06/08

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* A118507

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C6397

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 152 ft. Depth of completed well N/A ft.

**CONSTRUCTION DETAILS**

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 152 ft.

**Perforations:** ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

**Screens:** ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

**Gravel/Filter packed:** ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

**Surface Seal:** ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

**PUMP:** Manufacturer's Name ____

Type: ____ H.P. ____

**WATER LEVELS:** Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well 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.** S27644

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW1/4-1/4 NE1/4 Sec 2 Twn 12N R 26 EWM ☒ Or WWM ☐

**Lat/Long** (s, t, r Still REQUIRED) Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

**CONSTRUCTION OR DECOMMISSION PROCEDURE**

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

| MATERIAL | FROM | TO |
|---|---|---|
| Casing was drove utilizing a | 0 | 152.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| Borehole was drove vertical. | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| The tubing was back-pulled | 152.0 | 0.0 |
| and boring decommissioned | | |
| with 6 sks bentonite | | |
| crumbles. | | |
| NOTE 1: This boring is C6397 | | |
| located on the Hanford Site, | | |
| UPR-81 (C Tank Farm) | | |

Start Date 05/08/08 Completed Date 06/16/08

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 C. 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 08/06/08

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* A118507

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C6399

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 242 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 242 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. S27644

Unique Ecology Well ID Tag No. N/A

Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy

Well Street Address 825 Jadwin Ave.

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26

EWM ☒ Or WWM ☐

**Lat/Long** (s, t, r Still **REQUIRED)** Lat Deg ____ Min ____ Sec ____ Long Deg ____ Min ____ Sec ____

**CONSTRUCTION OR DECOMMISSION PROCEDURE**

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

| MATERIAL | FROM | TO |
|---|---|---|
| | | |
| Casing was drove utilizing a | 0 | 242.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 242.0 | 0.0 |
| and boring decommissioned | | |
| with 10.2 sks bentonite | | |
| crumbles. | | |
| | | |
| Moisture resistivity probes | | |
| were placed at a depth of | | |
| 215 and 50 ft bgs. Sand was | | |
| placed around the probe. | | |
| | | |
| Surface Protection was placed | | |
| on 07/15/08. | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| NOTE 1: This boring is C6399 | | |
| located on the Hanford Site, | | |
| UPR-81 (C Tank | | |
| Farm). | | |

Start Date 04/22/08 Completed Date 06/25/08

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 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. 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* A118507

**PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

**TYPE OF WORK:** Owner's number of well (if more than one) C6395

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

**DIMENSIONS:** Diameter of well 3.0 inches, drilled 152 ft. Depth of completed well N/A ft.

**CONSTRUCTION DETAILS**

Casing Installed: ☐ Welded ____" Diam. from ____ ft. to ____ ft.
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☒ Threaded 2.5" Diam. From 0 ft. to 152 ft.

**Perforations:** ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

**Screens:** ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

**Gravel/Filter packed:** ☐ Yes ☒ No Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

**Surface Seal:** ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

**PUMP:** Manufacturer's Name ____

Type: ____ H.P. ____

**WATER LEVELS:** Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well. Date ____

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. S27844

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 | 152.0 |
| hydraulic hammer unit mounted | | |
| on a backhoe. | | |
| | | |
| Borehole was drove vertical. | | |
| | | |
| Geophysical logging (Gamma | | |
| and Moisture) were conducted | | |
| | | |
| The tubing was back-pulled | 152.0 | 0.0 |
| and boring decommissioned | | |
| with 5.4 sks bentonite | | |
| crumbles. | | |
| | | |
| Moisture resisitivity probes | | |
| were placed at a depth of | | |
| 146 and 50 ft bgs. Sand was | | |
| placed around the probe. | | |
| | | |
| Surface Protection was placed | | |
| on 07/15/08. | | |
| | | |
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| | | |
| | | |
| NOTE 1: This boring is C6395 | | |
| located on the Hanford Site, | | |
| UPR-81 (C Tank | | |
| Farm). | | |

Start Date 05/08/08 Completed Date 08/30/08

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 F. 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 08/06/08

ECY 050-1-20 (Rev 3/05)

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# APPENDIX H

# SAFETY DOCUMENTS

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| ENERGYSOLUTIONS | **ACTIVITY HAZARD ANALYSIS**<br>**UPR-200-E-81CHARACTERIZATION HYDRAULIC HAMMER UNIT OPERATIONS** | AHA-08-001- 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. This work is to support characterization of UPR-200-E-81. The work will be performed in accordance with contract 31672-0 to complete the scope of requisition # 165806.

**Specific Work Location(s):** Hanford, 200 East Area, inside of C-Farm, near 241-CR-151.

**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>• 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, locked and tagged out.<br>Spill Containment and Control:<br>• Plastic sheeting and felt shall be placed beneath |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | equipment that has the potential for leakage of 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, 2719-WB 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 services arrive.<br>• All injuries are to be immediately reported to the field supervisor and site safety representative. |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | 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 and radiological training. |
| | Radiological Hazards | • All employees shall comply with the requirements defined in the client's radiological policies and procedure and the radiological work permit (RWP). |
| | Site Control Measures – Unplanned Entry | Signs/Barricades<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 | • Do not eat, drink, smoke, chew, or apply cosmetics in the work area unless specifically approved by the health and safety and radcon representatives.<br>• Provide wash water and wash hands prior to consuming food or beverages.<br>• Apprise work crew of the nearest toilet facility. |
| | 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 |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | handle or molest them. Monitor the snake's whereabouts until it is safely away from the work site. If needed, call the Pest Control (376-2517 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 |
| | Compressed Gas | • Secure nitrogen cylinder in cart with cap on, when moving. |
| 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, with a minimum NRR of 18, when driving the tractor. |
| | Falling off tractor | • Employees shall use a three point contact when ascending/descending the tractor 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. |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| 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 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. |

| Work Activity | Hazards Present | Required Safety Measures/PPE |
|---|---|---|
| | | 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 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, with an NRR of 32, and earmuffs. Personnel working greater than 10 feet but within 50 ft. from drill head shall wear hearing protection with a minimum NRR of 27.<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 18. |
| Decommissioning of the borehole | Bentonite/Silica Sand 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 | Office Phone # | Cell Phone # |
|---|---|---|
| Tank Farms Shift Manager | 372-2806 / 373-3475 | |
| WFO/BED | 373-2689 | |
| PIC / John Hawley | 376-7669 | 438-9316 |
| Harold Sydnor | 373-3967 | 438-1307 |

| *ENERGYSOLUTIONS* ACTIVITY HAZARD ANALYSIS ACKNOWLEDGEMENT<br>AHA-08-001-Rev. 0 CH2M HILL<br>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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ENERGYSOLUTIONS

| | |
|---|---|
| Date: July 3, 2008<br>Time: 0730 – 1220<br>Location: 241-C-UPR-81 | Inspectors: Carter K. (Kevin) Kirk |
| Activity: Decommissioning | Report #: CHG-CKK-08-024 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | | | X |
| Weekly safety meetings are conducted and documented. | | | X |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | | X[1] | |
| Radiological signs posted (where required). | | | X |
| Hearing protection signs posted (where required). | | X[2] | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X[3] | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | | X[4] | |
| Vermin/Insects | | X[5] | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | | X[6] | |
| Containers are labeled. | | X[7] | |
| 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[8] | |
| 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[9] | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 5

| | | | |
|---|---|---|---|
| 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[10] | |
| Cords and hose used are stored and maintained properly. | X | | |
| Lunch areas are clean and sanitary. | | X[11] | |
| Vehicles free of debris and maintained in a sanitary condition. | | X[12] | |
| 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] During the performance of this inspection, a co-located Tank Farm Employee associated with pre-transfer Industrial Hygiene activities associated with waste transfer from 241-C-109, not assigned to this construction activity passed through the work area with no evidence of attempts to control site access by the persons-in-charge or the communication of construction access control requirements that "Hearing Protection is required when machinery is operating. When this issued was discussed with the Field Work Supervisor and the Nuclear Chemical Operator supporting the project, the statement – paraphrased " was that this is not a normal path of access to the construction work activity and should have been controlled."

**Recommendation:** Need to strengthen construction site access controls either administratively or with more defined physical barriers to ensure that only personnel directly associated with the work package have direct involvement to the work area.

[2] This is a follow-on to note (1) above. Due to the activities in process at the time, hazard controls requiring the use of "Hearing Protection – while machinery was operating" and per the AHA was violated, administratively.

**Recommendation:** Need to communicate construction site access controls and Industrial Safety and Industrial Hygiene hazard controls/postings via all avenues of access to the work site.

[3] Thermal Stress monitoring commenced by CH2MHILL Hanford Group IH Technician following commencement of work. The QuestTemp 34 indicated low battery and IH Technician was prompted by inspector to replace battery which was performed immediately. Work Rest Regimens, based upon work activity level of :Moderate Work" assigned by Field Work Supervisor fluctuated on first entry into the Contamination Area between 100% to 75/25% Work-Rest Regimen. Following rest regimen, second entry WBGT readings indicated 25/75% work-rest regimen. Following the second entry, the work was suspended for the remainder of the work shift by the Field Work Supervisor.

**Observation:** Excellent adherence and implementation of IH Heat Stress Controls in place by Field Work Supervisor and CH2M Hill Hanford Group IH Technician assigned to the job.

[4] Refer to the Housekeeping note (8) (10) and (11) below.

[5] Inspector looked at support equipment appurtenances, shelves, and closed cabinets for signs of any vermin/insect nests/droppings. Examined exterior table drawers, ladders, overhead spaces, and C-Van fork lift slots for any signs of nests. One of the office trailers had a birds nest with no visible eggs or evidence of migratory bird status.

[6] During the site visit, the craft provided the Safety Engineer a copy of an MSDS delivered by a local vendor that provides equipment support for the drill head. The aerosol can is in appropriate storage in the Flammable Materials Locker. Energy*Solutions* Engineer III with primary responsibility was in attendance and is in the process of correcting the issue in accordance with established CH2MHill Hanford Group, Inc. Programs and Procedures and the contract requirements for this work scope. Container was stored in the Flammable Materials Storage Locker without the required markings.

**Finding:** Programmatic deficiency in the HAZCOM and Chemical Management Program. Program requires container to have been marked as "Do Not Use" until it has cleared through the Chemical Management Inventory Process.

**Finding:** Per Subcontract Document, Section 7.0, ESH&Q Requirements: 7.3 Applicable ES&H Requirements On site work provision apply to the execution of this work...

In addition to the requirements set forth herein, Subcontractor shall comply with all current CH2MHIILL environmental, safety and health procedurews incorporated into work control documents. In the event there is conflict between provisions of this document and the safety and health regulations or procedures, the more stringent provision shall apply.

**Recommendation:** After discussion with the Project Health and Safety representative, the preferred mechanisms is to have in place pre-made stickers/tags stating "Do Not Use - Awaiting Industrial Hygiene and Environmental Review and categorization in Chemical Management Databases" or something of similar communication that can be that can be temporarily placed onto chemicals received through procurement processes/vendors until approved by client and industrial hygiene. Follow up training on this process to complete the recommendation to all affected employees. This inspector notes that the process recommendation above is in conflict with the more stringent chemical management requirements within existing CH2MHill Hanford Company procedures, TFC-PLN-34, Industrial Hygiene Exposure Assessment Strategy; TFC-ESHQ-IH-STD-11, Carcinogen Control; TFC-PLN-58, Chemical Management Plan; TFC-PLN-73, Environmental Program Description; TFC-PLN-43, Tank Farm Contractor Health and Safety Plan; TFC-PLN-47, Worker Safety and Health Program.

[7] Empty five-gallon plastic barrel container found within the Flammable Materials Storage Locker. The reason this container was recognized is that it was stored on it's side. Concern was that in the barrels storage configuration, contents can leak out onto other materials within Flammable Materials Storage Locker. This observer repositioned the five-gallon container to a lower shelf in an upright manner and determined, after questioning an operator, that the container was empty. Container is labeled for hydraulic oil, but is used for hydraulic oil maintenance operations.

**Recommendation:** Consideration should be given to storing empty maintenance barrels for used oil/recycled w waste oil operations via a RCRA compliant Used Oil Storage Pad or container with secondary containment.

[8] **Observation:** Due to extreme mobility of the hardware and personnel supporting the UPR operations, employer-issued and personal-use PPE items are stored in various locations throughout project trailer facilities and support vehicles, with limited environmental controls due to environmental extremes experienced in closed, non-ventilated and unair-conditioned spaces during periods of work pause, i.e., weekends, end of shift. A lot of the PPE has environmental storage limitations to ensure integrity and usefulness of the PPE, i.e. Nitrile and Latex Gloves, Polyethylene materials for laydown and sleeving, safety glasses, faceshields and suspension systems, etc.

**Recommendation:** Proper maintenance and storage is essential to ensure the integrity of PPE. The layering of operations supplies, equipment, drill rig pins, clothing, vests, boots and lunchboxes and tools in heeps within project support vehicles is a practice that should be avoided at all times, but consideration given to the operations and support areas, should definitely be minimized. The use of storage totes, plastic bins which segregates and secures tools from PPE, from personal items such as foods and beverage should be implemented. This will assist in protecting the PPE from contamination, destruction, and environmental degradation, but can also satisfy load securement issues within the project commercial vehicles. This is also a housekeeping item referenced in observation (4) above.

[9] Fire extinguishers located within the project trailer and on the portable gen set did not have recent evidence of monthly Fire Extinguisher inspections as required by NFPA 10. An accessible B:C Fire Extinguisher was not supplied within the vicinity of the Flammable Materials Storage Locker. Note: This item was addressed with the CH2M HILL Hanford Group Field Work Supervisor and corrected immediately, but when it was addressed with the Energy*Solutions* Project Manager, the observer was informed of issues relative to theft of fire cans and support equipment left unattended within the personal property areas, thereby the decision to keep the fire extinguishers under lock and key in accessible work areas during off hours.

**Recommendation:** Need to establish positive controls between Contractor and Subcontractor-owned equipment, i.e., fire extinguishers, ensure that they are described and inventoried in appropriate inventory

management programs, and implement required monthly, yearly, and hyrostatic testing protocols per respective programs, all which at a minimum must comply with NFPA 10 and OSHA requirements.

[10] **Observation:** Housekeeping, per the checklist, and expectations defined within work control documentation and TFC-PLN-43, Tank Farm Contractor Health and Safety Plan lacked rigor. Containers that required storage in refrigerated lockers after opening were dispersed **through**-out the mobile office. Trash was not being picked-up and emptied at the end of shift, being subject to windblown and environmental dispersal at the site. First Aid Supplies, i.e., personal use eyewash bottles were located that were past their expiration due date. They were provided to the Field Work Supervisor for removal from service.

**Recommendation:** Worker's and management need to ensure at the end of each working shift, that trash and personal use items are picked up and appropriately disposed up per requirements established in the Tank Farms Health and Safety Plan and per the appropriate Waste Disposal guidelines established in the subcontract.

[11] **See Item 10 above.** Due to intermittent sources of portable power to supply refrigeration units and temperature controlled hardware, it is recommended that food stores be handled as individual-personal use only to limit employer risk for health and welfare, as well as potential OSHA recordability, No supplies should be construed or managed as potentially employer provided-supplied. Remove the potential for any food-borne or disease vector associated health and welfare liability at these mobile work sites.

[12] **See Item 8 above.**

ENERGYSOLUTIONS

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|---|---|
| Date: 7-23-08<br>Time: 10:30<br>Location: UPR-81/Cleaning Pad | Inspectors: Mark Hartney |
| Activity: Demobilization of UPR-81 & Cleaning Pad Operations | Report #: CHG-MJH-08-023 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | | | X |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | | | X |
| Radiological signs posted (where required). | | | X |
| Hearing protection signs posted (where required). | | | X |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | | | X |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | | | X |
| The MSDS is updated and legible. | | | X |
| Containers are labeled. | | | X |
| A list of hazardous materials is available; quantities included if required. | | | X |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | | | X |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | | | X |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | | | X |
| Hearing protection is worn, when required. | | | X |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | | | X |
| A valid RWP is available covering the scope of work currently performed. | | | X |
| Radiation monitoring coverage meets the RWP requirements. | | | X |
| Proper PPE is used. | | | X |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | | | X |
| Fire extinguishers are provided and have documented monthly inspections. | | | X |
| Flammable/combustibles are stored in approved containers. | | | X |
| Approved containers are properly stored. | | | X |

| | | | |
|---|---|---|---|
| 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. | | | |
| 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 work team (Olson/Repko) were demobilizing the work site and transferring equipment and materials to the CHG cleaning pad. This inspection was conducted at the UPR-81 site at "C" Farm and at the CHG cleaning pad.

The UPR-81 site is shut down with most of the equipment and materials removed from the work site. There was very little activity at this location. I observed a project worker manually handling drill pipe and loading it into the storage/handling racks. The worker was wearing leather gloves and safety glasses as required. I did not observe any body motion that put them at risk nor did I observe their hands being placed in any pinch points (pipe vs. pipe/pipe rack).

A CHG worker was also observed operating a forktruck to move and position the loaded pipe racks. I noted the operator taking caution during transportation with the load ~6" from the ground and speeds commensurate with the road conditions. I watched the operator position the loads with care and precision. It was obvious that the operator understood the work site conditions and handled the equipment appropriately.

There was no work being conducted at the cleaning pad. The cleaning machine battery was "dead." I discussed the operation of this equipment with K. Olson. Though he had not run this particular piece of equipment, he felt it was very similar to others he had run. He had the operations manual for this equipment with him and stated that he was not finding any significant operational differences.

When asked what safety analysis they were working to, the workers stated there was a CHG Work Package developed for this task. In checking with the CHG Supervisor (Bill) he provided me the "Verbal Work Package" documentation. I reviewed the Package and found that it covered the work task scope and adequately analyzed the task for the associated hazards.

**Action:** Though the Package provided by CHG was adequate to perform the cleaning work, I would recommend that an EnergySolutions JSA be developed for this work. The JSA would provide an analysis for this task regardless of client (CHG and/or others) and would also provide a consistent approach with CHG or other clients that we provide JSAs to for other aspects of our drilling work.

I recommend that drilling management consider the cleaning task and/or other related work to be included in a separate JSA. This issue has been discussed with Rob Zane and Kent Reynolds.

ENERGYSOLUTIONS

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|---|---|
| Date: 04/15/08<br>Time: 1300<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Driving Casing | Report #: CHG-RWZ-08-014 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | 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.**

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ENERGYSOLUTIONS

| | |
|---|---|
| Date: 04/25/08<br>Time: 0900<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Driving Casing | Report #: CHG-RWZ-08-015 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | | | X |
| The MSDS is updated and legible. | | | X |
| Containers are labeled. | | | X |
| A list of hazardous materials is available; quantities included if required. | | | X |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | | | X |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | 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.** | | | |

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ENERGYSOLUTIONS

| | |
|---|---|
| Date: 05/09/08<br>Time: 1130<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Driving Casing | Report #: CHG-RWZ-08-016 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | | | X |
| The MSDS is updated and legible. | | | X |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | | | X |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | 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.** | | | |

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 05/23/08<br>Time: 1100<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-017 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | 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.** | | | |

Page 2 of 2

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 05/29/08<br>Time: 1415<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Operating HHU | Report #: CHG-RWZ-08-018 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | 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.** | | | |

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 06/06/08<br>Time: 1000<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Stand-by | Report #: CHG-RWZ-08-019 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

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| | | | |
|---|---|---|---|
| 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.** | | | |

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ENERGYSOLUTIONS

| | |
|---|---|
| Date: 06/12/08<br>Time: 1030<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Decommissioning Boreholes | Report #: CHG-RWZ-08-020 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | 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.**

Prior to arriving at the job site, electricians performed periodic inspection/testing of electrical equipment. They pointed out that a table was blocking access to the breaker box. Project personnel removed the table and corrected the issue.

1. The Lunch/PPE Trailer needs housekeeping.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 06/20/08<br>Time: 0930<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Decommissioning Boreholes | Report #: CHG-RWZ-08-021 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

Page 1 of 2

| | | | |
|---|---|---|---|
| Temporary heaters are located away from combustibles or flammables | | | X |
| **Tools** | 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.**

1. The Lunch/PPE Trailer needs housekeeping.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 06/26/08<br>Time: 1000<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Decommissioning Boreholes | Report #: CHG-RWZ-08-022 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

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| | | | |
|---|---|---|---|
| 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.**

1. The Lunch/PPE Trailer needs housekeeping.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 07/10/08<br>Time: 1300<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Decommissioning Boreholes | Report #: CHG-RWZ-08-025 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | X | | |
| Weekly safety meetings are conducted and documented. | X | | |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | X | | |
| Radiological signs posted (where required). | X | | |
| Hearing protection signs posted (where required). | X | | |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | X | | |
| The MSDS is updated and legible. | X | | |
| Containers are labeled. | X | | |
| A list of hazardous materials is available; quantities included if required. | X | | |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | X | | |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | X | | |
| Hearing protection is worn, when required. | X | | |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | X | | |
| A valid RWP is available covering the scope of work currently performed. | X | | |
| Radiation monitoring coverage meets the RWP requirements. | X | | |
| Proper PPE is used. | X | | |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | X | | |
| Fire extinguishers are provided and have documented monthly inspections. | X | | |
| Flammable/combustibles are stored in approved containers. | X | | |
| Approved containers are properly stored. | X | | |

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| | | | |
|---|---|---|---|
| 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.**

1. The Lunch/PPE Trailer still needs housekeeping.

ENERGYSOLUTIONS

| | |
|---|---|
| Date: 08/01/08<br>Time: 1000<br>Location: UPR-81 | Inspectors: Rob Zane |
| Activity: Moving Equipment to TY-Farm | Report #: CHG-RWZ-08-026 |

| TOPIC | Yes | No | N/A |
|---|---|---|---|
| **Daily Inspections** | | | |
| Daily inspections are performed and documented. | | | X |
| Weekly safety meetings are conducted and documented. | | | X |
| **Signs, Signals and Barricades** | | | |
| Hazard signs posted, such as noise, PPE, chemical | | | X |
| Radiological signs posted (where required). | | | X |
| Hearing protection signs posted (where required). | | | X |
| **Industrial Hygiene** | | | |
| Heat/cold stress – issues. | X | | |
| Illumination is adequate. | X | | |
| Dust control measures are adequate. | X | | |
| Sanitation (cleanliness of general work area, lunch areas, port-o-lets) adequate. | X | | |
| Vermin/Insects | X | | |
| **Hazard Communication Program** | | | |
| An MSDS is located at the workplace and is accessible. | | | X |
| The MSDS is updated and legible. | | | X |
| Containers are labeled. | | | X |
| A list of hazardous materials is available; quantities included if required. | | | X |
| Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly. | | | X |
| **Personal Protective Equipment** | | | |
| PPE is provided for all employees. | X | | |
| PPE is properly maintained and used. | X | | |
| Hard hats are worn. | X | | |
| Approved safety glasses are worn. | X | | |
| Proper foot protection is worn. | X | | |
| Proper work clothing is worn. | X | | |
| Respirator program is implemented as required. | | | X |
| Hearing protection is worn, when required. | | | X |
| **Radiation Protection** | | | |
| All radiation areas are posted and legible. | | | X |
| A valid RWP is available covering the scope of work currently performed. | | | X |
| Radiation monitoring coverage meets the RWP requirements. | | | X |
| Proper PPE is used. | | | X |
| **Fire Protection** | | | |
| Exits are marked and clear of obstacles. | | | X |
| Fire extinguishers are provided and have documented monthly inspections. | | | X |
| Flammable/combustibles are stored in approved containers. | | | X |
| Approved containers are properly stored. | | | X |

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| | | | |
|---|---|---|---|
| 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.** | | | |

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