Summary of Direct Push Exploration at 241-C-152 Diversion Box in 241-C Tank Farm

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Abstract: This report is a summary of direct push activities relating to 241-C-152 Diversion Box in 241-C Tank Farm.

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Remediation and Well Services Group

Energy *Solutions* Federal Services, Inc.

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

BGS	below ground surface
CH2M HILL	CH2M HILL Hanford Group, Inc.
CPT	cone penetrometer truck
DOE	U.S. Department of Energy
HHU	hydraulic hammer unit
ICPMS	inductively coupled plasma mass spectrometry

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SUMMARY OF DIRECT PUSH EXPLORATION AT 241-C-152 DIVERSION BOX IN 241-C TANK FARM

1.0 INTRODUCTION

Actions described below were outlined as characterization requirements in DOE/RL-99-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas* (DOE/RL-99-36) and subsequent addenda. The specific characterization scope was intended to provide definition to the vertical and lateral extent of radiological and chemical waste resulting from a piping failure adjacent to the 241-C-152 Diversion Box.

The data requirement goals identified through a data quality objective process were documented in the addendum for Waste Management Areas C, A-AX, and U. These data requirement goals were further identified, defined and documented through a site-specific data quality objective process and were contained in RPP-7578, *Site-Specific SST Phase 1 RFI/CMS Work Plan Addendum for WMAs T and TX-TY*. The outlined goals include the tasks, project responsibilities and schedules for the characterization efforts. Two specific areas of investigation were specified in RPP-7578. The first was placement of a borehole adjacent to 241-C-105 single-shell tank and the second was the collection of vadose zone data from the installation of a borehole adjacent to the 241-C-152 Diversion Box valve and underground piping assembly. (See RPP-32073, *Completion Report for C4297 (C-105) C Tank Farm Drilling and Sampling*, for information relating to the 241-C-105 drilling effort and the current status.) Because of infrastructure and contamination concerns, a series of direct push technology investigation holes was planned near the 241-C-152 Diversion Box to evaluate subsurface conditions prior to location and drilling of the planned borehole. The push locations were planned to determine the near-surface (e.g., 0 to 18+ meters [0 to 60+ feet] below ground surface [BGS]) vertical and lateral extent of Cs-137 contamination in the vicinity of the C-152 Diversion Box. During fiscal year (FY) 2004 an attempt was conducted to complete the direct push exploration by use of a cone penetrometer truck (CPT); however, due to support issues only one push exploration was accomplished. During the late winter and spring of 2005 Duratek Technical Services (DTS), now Energy*Solutions* Federal Services, Inc., Northwest Operations (Energy*Solutions*) proposed the development and utilization of a hydraulic hammer unit (HHU) backhoe mounted percussion unit to conduct the exploration activities. These activities included placement of 19 vertical and six angle push explorations and associated sample collection.

The direct push data gathering was designed to accomplish the following.

- Identify the areal and vertical extent of the shallow soil contamination.
- Quantify the contamination levels of the gamma-emitting nuclides as a guide for placement of a vadose borehole, if deemed necessary based on logging and sampling results.

- Quantify soil moisture content for shallow fine-grained zones located under the diversion box area.
- Provide soil samples for laboratory analysis of the soil contamination levels.

Details of the planned work scope relating to the 241-C-152 Diversion Box were contained in DTS-DOW-010 (Appendix A) for work related to CPT activities and DTS-DOW-013 (Appendix B) for work scope performed utilizing the HHU for vertical direct push activities.

At the conclusion of the vertical direct push activities, additional work was conducted with the HHU in an angle push configuration. Performance of borehole placement at an angle required testing of directional control of the angle push. It also required field testing of a newly procured borehole gyroscope used for tracking the subsurface path of the tubing and for documenting the precise Northing, Easting and elevation of sampling performed during angle pushes. Additional testing was performed to verify the HHU could achieve push depths greater than 30.48 meters (100 feet) BGS. Both angle and depth capability testing were conducted at the Mock Tank Site in the 200 East Area of the Hanford Site. To further define the HHU capabilities, CH2M HILL Hanford Group, Inc. (CH2M HILL) directed Energy*Solutions* to deploy the HHU equipment to a site near the 100-N Area for placement of 5.08 centimeter (2-inch) shallow well constructions in difficult geologic conditions found there. This effort supported the Fluor Hanford Groundwater Program. Additionally, the HHU was deployed to the Z-1A and Z-9 Crib area adjacent to Plutonium Finishing Plant to demonstrate soil vapor and soil/sediment sampling depth capabilities. At the conclusion of the development and testing, the HHU unit and the surface angle control equipment were deployed into 241-C Tank Farm. Six angle pushes with multiple sampling events were conducted during this deployment under the auspices of DTS-DOW-016, Rev. 1. This description of work (DOW) (see Appendix I) describes the locations, angle of push and sampling intervals intended for collection during field activities.

The purpose of this report is to document the actions performed during the direct push activities performed under DTS-DOW-010, DTS-DOW-013 and DTS-DOW-016. The details of each deployment or set of deployments are contained in Section 2.0 for vertical direct push exploration and sampling and Section 4.0 for direct push exploration and sampling conducted using angle push exploration methods. The information contained in each appendix is intended to do the following.

- Provide an account of activities performed (summary of activities and Field Activity Reports).
- Transmit geophysical data collected during push activities.
- Identify sampling points and provide copies of the Field Logbook entries for sampling as well as Chain of Custody documentation.
- Provide push (exploratory) and sampling hole tracking, decommissioning and identification data.
- Document Safety Surveillances conducted during field operations.

1.1 241-C-152 BACKGROUND

The 241-C-152 Diversion Box is located in the northwest corner of the 241-C Tank Farm. This valve control and pipe system was designed to route waste liquids from the facilities to individual tank runs and to control the pumping of liquids between tanks and from tanks to reprocessing facilities.

In 1969, line V-122 adjacent to the 241-C-152 Diversion Box is reported to have leaked approximately 9,842 liters (2,600 gallons) of B Plant waste during a transfer. Information documenting the release and data gathered during a subsequent field investigation were contained in the UPR-200-E-82 Unplanned Release Report (RHO-CD-673). It was estimated that during the release approximately 378 liters (100 gallons) of the 9,842 liters (2,600 gallons) that were lost from the broken/failed pipe surfaced near the valve box structure. This contaminated surface was covered with clean gravel and subsequently covered with cement. Calculations indicate that 11,300 curies of Cs-137 were lost to the soil during the release. Calculations based on the samples recovered during the field investigation indicate that the maximum concentration in the soil was 550 Ci/g at approximately 3.7 meters (12.14 feet) below the original surface grade.

The Unplanned Release Report also describes a “caliche” or moisture-retarding layer approximately 15.2 centimeters (0.5 feet [6 inch.]) in thickness located 3.9 to 4.3 meters (12.8 to 14.1 feet) below the original ground surface. Regional stratigraphic analysis and facies studies of Hanford-related geology indicate that the described caliche is more likely a shallow subsurface paleosol (a soil development horizon rich in calcium carbonate that became buried in subsequent flood gravel and/or aeolian sand deposition). The areal extent of this fluid-retarding layer is not known.

Figures 1, 2 and 3 provide location maps for C Tank Farm and the vertical and angle push locations adjacent to the 241-C-152 Diversion Box.

Figure 1. General Location Map.

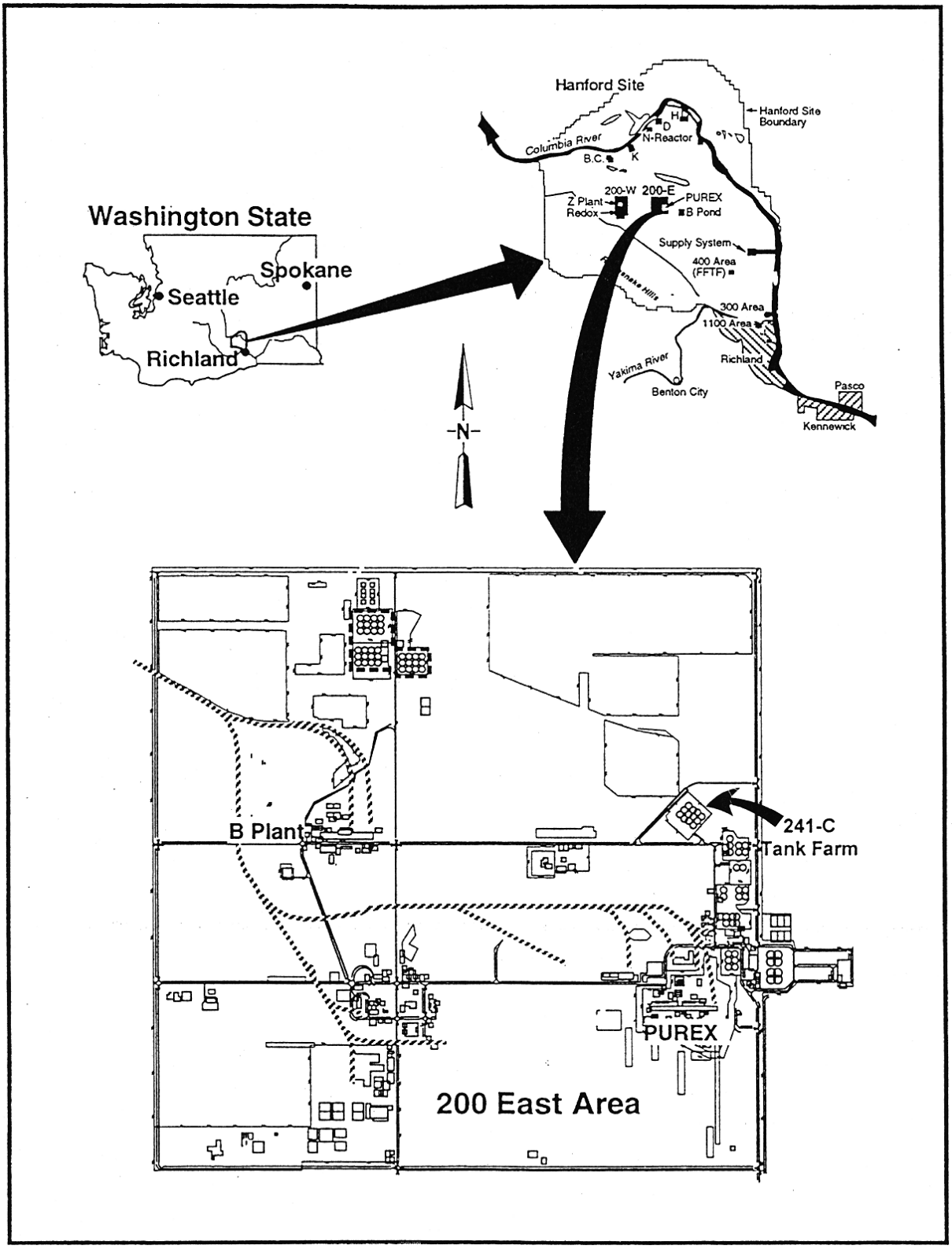
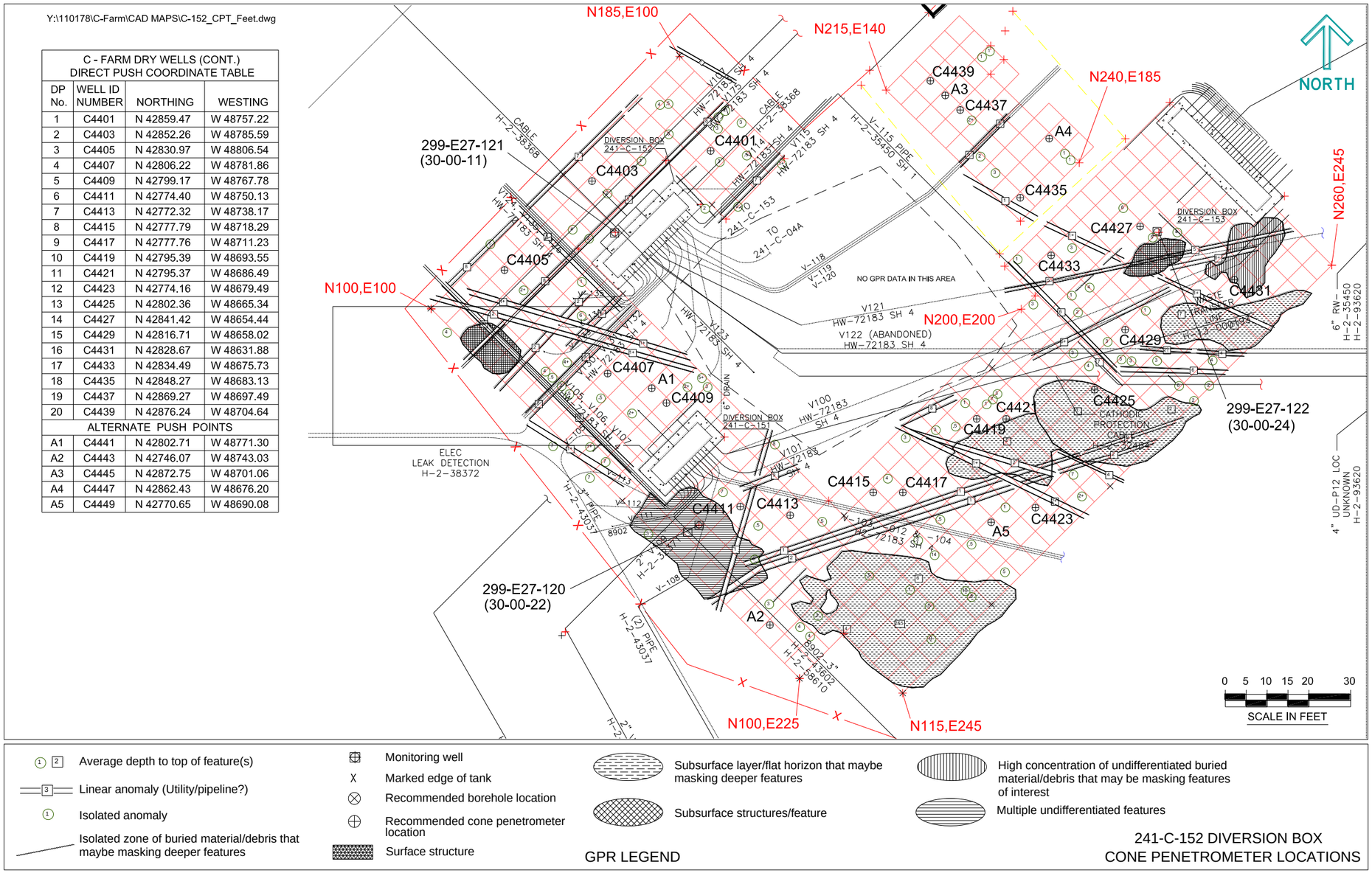


Figure 2. C-152 Area Map—Vertical Push Locations.



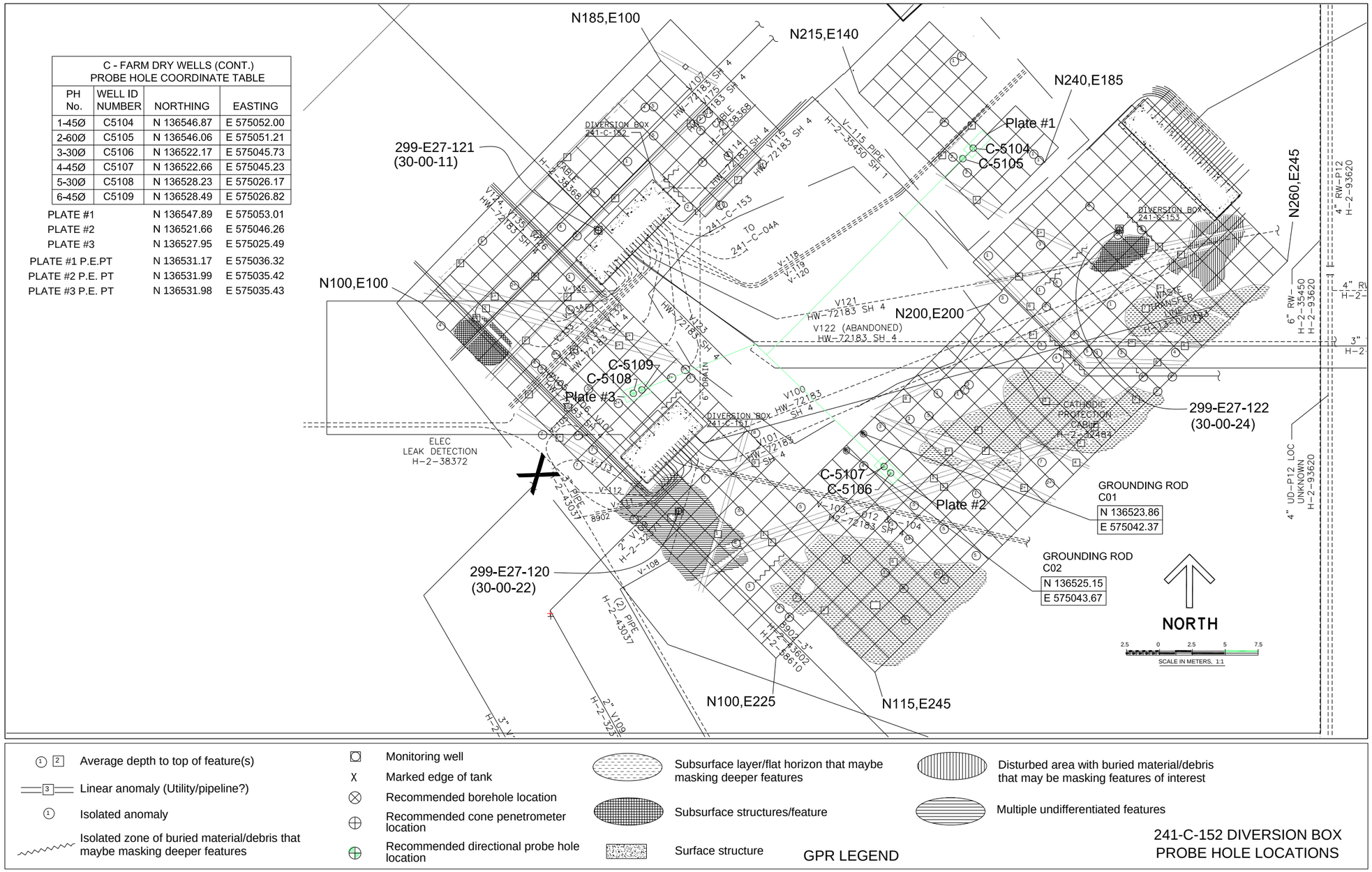
C - FARM DRY WELLS (CONT.) DIRECT PUSH COORDINATE TABLE			
DP No.	WELL ID NUMBER	NORTHING	WESTING
1	C4401	N 42859.47	W 48757.22
2	C4403	N 42852.26	W 48785.59
3	C4405	N 42830.97	W 48806.54
4	C4407	N 42806.22	W 48781.86
5	C4409	N 42799.17	W 48767.78
6	C4411	N 42774.40	W 48750.13
7	C4413	N 42772.32	W 48738.17
8	C4415	N 42777.79	W 48718.29
9	C4417	N 42777.76	W 48711.23
10	C4419	N 42795.39	W 48693.55
11	C4421	N 42795.37	W 48686.49
12	C4423	N 42774.16	W 48679.49
13	C4425	N 42802.36	W 48665.34
14	C4427	N 42841.42	W 48654.44
15	C4429	N 42816.71	W 48658.02
16	C4431	N 42828.67	W 48631.88
17	C4433	N 42834.49	W 48675.73
18	C4435	N 42848.27	W 48683.13
19	C4437	N 42869.27	W 48697.49
20	C4439	N 42876.24	W 48704.64
ALTERNATE PUSH POINTS			
A1	C4441	N 42802.71	W 48771.30
A2	C4443	N 42746.07	W 48743.03
A3	C4445	N 42872.75	W 48701.06
A4	C4447	N 42862.43	W 48676.20
A5	C4449	N 42770.65	W 48690.08

Average depth to top of feature(s)
Linear anomaly (Utility/pipeline?)
Isolated anomaly
Isolated zone of buried material/debris that maybe masking deeper features
Monitoring well
Marked edge of tank
Recommended borehole location
Recommended cone penetrometer location
Surface structure
Subsurface layer/flat horizon that maybe masking deeper features
Subsurface structures/feature
High concentration of undifferentiated buried material/debris that may be masking features of interest
Multiple undifferentiated features

GPR LEGEND

241-C-152 DIVERSION BOX
CONE PENETROMETER LOCATIONS

Figure 3. C-152 Area Map—Angle Push Locations.



1.2 CONE PENETROMETER ACTIVITIES AND HYDRAULIC HAMMER UNIT INTRODUCTION

Energy*Solutions* began preliminary design and procurement planning for direct push March 2004. This was followed by procurement of a contract for CPT drilling support by mid April 2004. The CPT crew was deployed to Hanford in mid May for the required site-specific training and the CPT was deployed to the Hanford Site in early July. Due to support issues and the newly imposed breathing air requirements, the CPT did not enter the tank farms until October 2004, when a single push at the C 4401 location was conducted. The borehole (C 4401) was logged with gamma and moisture geophysical tools. Again, due to support issues, the C Farm was not entered again until January 2005. At that time the borehole was decommissioned with placement of cement grout, and the CPT was surveyed out of the farm and the subcontractor released.

Based on the observations made during operation of the CPT, a recommendation was made to CH2M HILL to alter the technology approach for the shallow soil characterization work scope. Energy*Solutions* proposed the use of a high-impact hydraulic hammer mounted on a small tractor as an alternative to the CPT. A unit of this design had several advantages over the large CPT. Drilling engineering and efficiency assessment indicated that a high-impact hammer would easily and consistently drive the 6.35 centimeter (2.5-inch) tubing to the target depths of 10.6-13.7 meters (35–45 feet) BGS. The tractor and hammer/mast unit would be significantly more maneuverable and have a lower total weight than a CPT. The lower total weight would allow for investigation of points closer to potential point sources of contamination leakage by reducing dome load and structural integrity issues. The lighter weight also increases maneuverability allowing easier movement of the equipment in the congested areas around the tanks and diversion boxes. The improved maneuverability would also make it easier to move the driving equipment off placed boreholes and to return it after logs have been acquired and interpreted.

This maneuverability would allow the crew to drive a borehole and move to the next investigation target while the geophysical logging runs are conducted. The mobility and maneuverability would potentially allow multiple boreholes to be driven in one day. Tubing extraction would be conducted by using the tractor-mounted drive unit or a set of small hydraulic jacks and a hydraulic power pack mounted on a skid unit if/when necessary. Borehole driving and logging could continue simultaneously. When a sufficient number of boreholes are in place for logging purposes and logging has concluded on one or several pushes, the driving crew operators could begin extraction. Crew efficiencies would be improved for the borehole driving/extraction and for logging efforts as both operations would be taking place in the same time frame. Also, more efficient use of the tank farm-supplied Nuclear Chemical Operators, Health Physics Technicians and Industrial Hygiene Technicians would be achieved because the same personnel would cover all three phases of work.

This approach allowed for the following:

- Use of more mobile equipment (e.g., a backhoe-mounted hydraulic hammer driving system), and
- Multitasking (e.g., work is not confined to sequential operations).

Upon CH2M HILL review and approval of the proposal, Energy*Solutions* researched and specified a hammer and mast combination with tractor mount to meet the intended use and procured a backhoe tractor-mounted hydraulic hammer unit. Below is a picture (Figure 4) of the procured unit deployed in 241-C Tank Farm.

With the use of the backhoe tractor-mounted hydraulic hammer unit, a 6.35 centimeter (2.5-inch) outside diameter x 4.45 centimeter (1.75-inch) inside diameter casing could be driven to specified target depths or refusal, for investigative purposes at predetermined locations. Once a push location is logged, the data could be reviewed by CH2M HILL and sample locations and depths selected. If significant contamination or geological features of interest are identified, a second location within 0.6 meter (2 feet) of the exploratory hole could then be pushed for sample retrieval.

Figure 4. Backhoe Tractor-Mounted Hydraulic Hammer Unit.

2.0 HYDRAULIC HAMMER UNIT VERTICAL PUSH FIELD ACTIVITIES

2.1 SUMMARY OF HHU VERTICAL PUSH

Field activities utilizing the HHU in a vertical mode began July 1, 2005, and were concluded with removal of all borehole driving equipment and support items from the vicinity of the 241-C-152 Diversion Box September 13, 2005. A total of 52 field days were used to complete the specified scope of work. There were 158.5 hours of associated down time. Exact dates and explanation of down time can be found in Appendix C, "Drilling and Sampling Daily Work Records—Vertical Boreholes," and Appendix D, "Explanation of Down Time for Vertical Boreholes." While the HHU was deployed in C Tank Farm, a total of 19 exploratory boreholes were pushed and geophysically logged with gross/spectral gamma and moisture logging instrumentation, and a total of 20 sampling attempts were made.

2.2 SOIL SAMPLING

Soil sampling with the rotary hammer unit was accomplished using a single-wall sampling system. When the sampler and sample point are locked into place, the sample point and point holder combine to make a solid drive head. Once the drive head had been pushed to sample depth, an inner rod was lowered down the center of the casing to release the sample point. The casing and sampler were then advanced far enough to push the point up through the sampler, filling the two 4.22 centimeter (1.66-inch) outside diameter x 22.86 centimeter (9-inch) long stainless steel sample liners with material. Because of the formation materials on the Hanford Site, and the specific design of the single-wall sampling system (i.e., the sampler is part of the boring tip), fine soil particles can become wedged between the tip and the tip holder, causing the tip to become slightly disfigured and preventing the sampler from opening properly. Occasionally, the sampler would be partially empty. See Table 1 for vertical borehole sample-related information.

Table 1. Sample Intervals for C Farm Vertical Borehole Sampling.

	Borehole Hole #	Sample Date	Ground surface Elevation (m)	Depth of Sample (ft) bgs	Depth of Sample bottom of "Shoe" (m) bgs	Sample Number	Recovery
1	C4404	7/27/2005	203.049	20	196.32	S05001-03	100%
2	C4406	7/22/2005	203.258	12	198.97	S05001-01	60%
3	C4408	7/26/2005	203.229	9.5	199.70	S05001-02	100%
4	C4410	7/27/2005	203.037	23	195.39	S05001-04	100%
5	C4412	8/3/2005	203.195	23.5	195.40	S05001-06	100%
6	C4414	8/3/2005	203.165	13.5	198.42	S05001-05	100%
7	C4416	8/12/2005	203.059	14.5	198.01	S05001-10	100%
8	C4418	8/11/2005	203.035	11.5	198.90	S05001-09	100%
9	C4420	8/10/2005	202.635	16.5	196.97	S05001-08	95%
10	C4422	8/9/2005	202.586	11.5	198.45	S05001-07	100%
11	C4426	9/12/2005	202.486	5.5	200.18	S05001-20	60%
12	C4428	9/9/2005	201.608	18	195.49	S05001-19	100%
13	C4430	9/13/2005	202.025	18.5	195.75	S05001-21	100%
14	C4432	9/6/2005	201.709	20.5	194.83	S05001-11	75%
15	C4434	9/8/2005	201.89	13.5	197.14	S05001-18	100%
16	C4436	9/8/2005	201.738	16	196.23	S05001-17	90%
17	C4438	9/7/2005	201.86	13.5	197.11	S05001-14	100%
18	C4440	9/6/2005	201.96	6.5	199.34	S05001-12	50%
19	C4445	9/7/2005	201.962	6.5	199.35	S05001-13	65%
20	C4448	9/7/2005	201.542	17	195.73	S05001-15	100%
21	NA	9/7/2005	NA	NA	NA	S05001-16 (Equipment blank)	NA

NOTE: Length of sampler and shoe is 2.08 feet.

Samples were obtained and analyzed in accordance with CH2M HILL Sample Authorization Form #S05-001. Samples were analyzed for anions, total organic carbons, conductivity, pH, gamma energy and inductively coupled plasma mass spectrometry (ICPMS) radionuclides. The sample drive head, sample tip, liners, inner sample barrel and piston rod 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 any previous use of the equipment or from the manufacturing process. Copies of the chain of custody forms and field logbook notes for sample collection during vertical borehole placement and sampling are provided in Appendix E.

2.3 GEOPHYSICAL LOGGING

Pacific Northwest Geophysics and Three Rivers Scientific conducted the geophysical logging data collection services on the original 19 exploration 6.35 centimeter (2.5-inch) boreholes and the pre-existing cone penetrometer borehole. Logging surveys were conducted using three detectors: neutron moisture (moisture gauge), gross gamma, and spectral gamma. All of the surveyed boreholes showed only background levels of activity from natural radionuclides. The surveys that were performed assisted CH2M HILL personnel in identifying zones of interest for sample collection and laboratory analysis. A report detailing calibration, survey results and data interpretation, as well as copies of the collected and processed log data, are provided in Appendix F.

2.4 DECOMMISSIONING AND GLOBAL POSITIONING SATELLITE SURVEYING

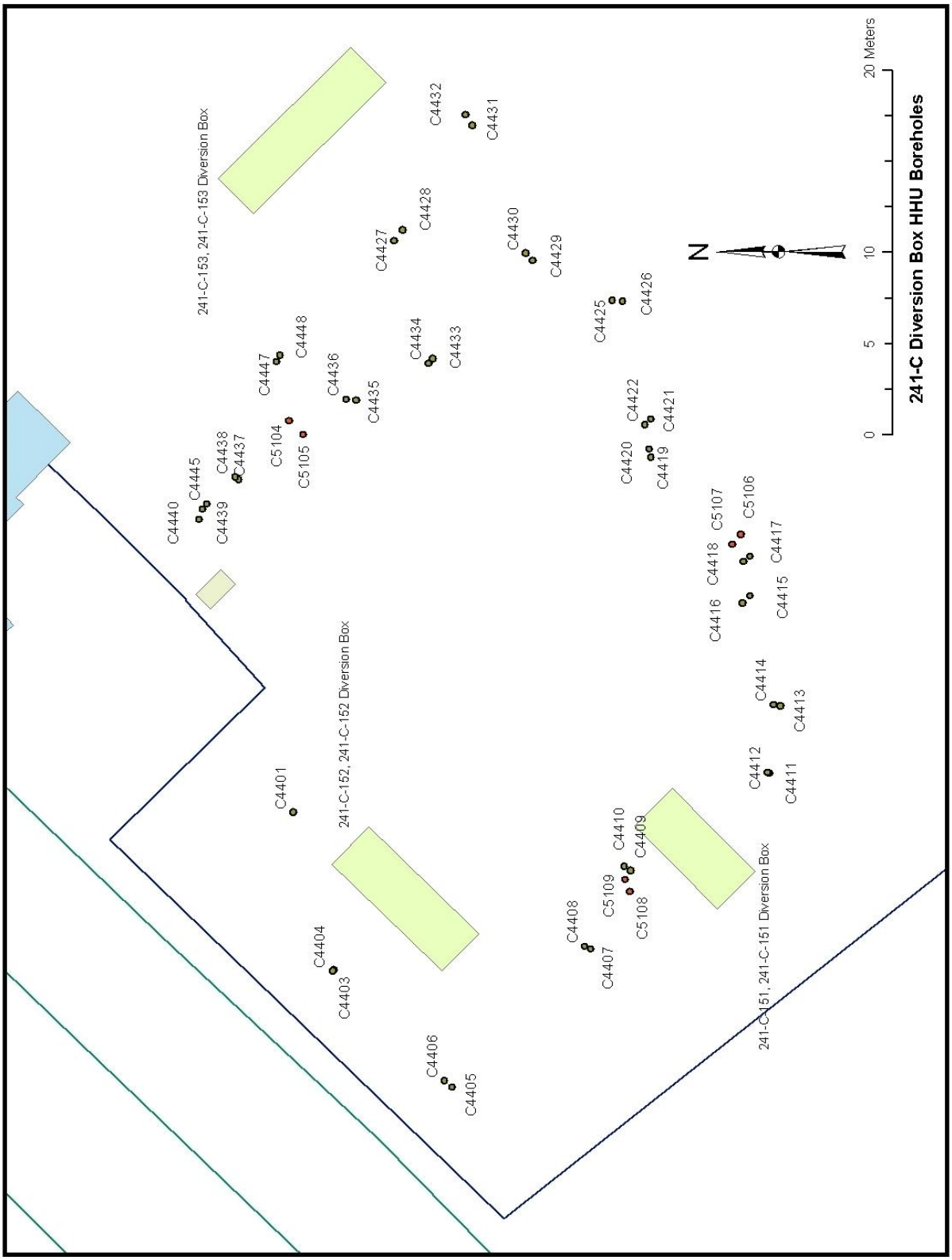
Decommissioning of all the boreholes was conducted in accordance with the *Washington Administrative Code* (WAC) 173-160 requirements. For decommissioning the exploratory boreholes, the tip was knocked out, and then the casing was back pulled while grout was simultaneously added to the casing until it reached the surface. In accordance with DTS-DOW-013, Rev. 0, the location of each successful exploratory borehole was recorded using a Trimble[1] 5800 Global Positioning Satellite Survey system. The recorded coordinates were placed on a map showing their locations in direct relation to the 241-C-151, 241-C-152 and 241-C-153 Diversion Boxes. The coordinates, elevations and a map showing completed push locations/boreholes for vertical boreholes are provided in Table 2 and Figure 5. Appendix G contains copies of the Washington State Department of Ecology documentation pertaining to the vertical push activities surrounding the 241-C Diversion Boxes.

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

Table 2. C Farm Direct Push Coordinate Elevations (Vertical).

Borehole #	Northing	Easting	Elevation
C4401	136546.6	575030.5	
C4403	136544.4	575021.9	
C4404	136544.5	575021.8	203.049
C4405	136537.9	575015.5	
C4406	136538.3	575015.8	203.258
C4407	136530.4	575023.0	
C4408	136530.7	575023.2	203.229
C4409	136528.2	575027.3	
C4410	136528.5	575027.5	203.037
C4411	136520.6	575032.7	
C4412	136520.7	575032.7	203.195
C4413	136520.0	575036.3	
C4414	136520.4	575036.4	203.165
C4415	136521.7	575042.4	
C4416	136522.1	575042.0	203.059
C4417	136521.7	575044.6	
C4418	136522.0	575044.3	203.035
C4419	136527.1	575050	
C4420	136527.1	575050.4	202.635
C4421	136527.0	575052.1	
C4422	136527.4	575051.8	202.586
C4425	136529.2	575058.6	
C4426	136528.6	575058.5	202.486
C4427	136541.1	575061.9	
C4428	136540.7	575062.4	201.608
C4429	136533.6	575060.8	
C4430	136533.9	575061.1	202.025
C4431	136537.2	575068.8	
C4432	136536.9	575068.2	201.709
C4433	136539.0	575055.4	
C4434	136539.2	575055.1	201.89
C4435	136543.2	575053.1	
C4436	136543.7	575053.2	201.738
C4437	136549.6	575048.7	
C4438	136549.8	575048.9	201.86
C4439	136551.7	575046.6	
C4440	136551.6	575047.1	201.96
C4445	136551.3	575047.4	201.962
C4447	136547.5	575055.2	
C4448	136547.3	575055.6	201.542

Figure 5. 241-C-152 Diversion Box HHU Boreholes.



3.0 HYDRAULIC HAMMER UNIT DEPTH TESTING

Vertical and angle pushes were conducted at the Mock Tank Site. The testing of the HHU began with measuring total depth vertical capability. Total vertical depths were 38.7 meters (127 feet) and 34.4 meters (113 feet) BGS. After the vertical testing, three angle holes (30 degrees, 45 degrees and 60 degrees from vertical) were pushed. These resulted in total pipe run lengths of 31.1 meters (102 feet), 31.5 meters (103.5 feet) and 31.7 meters (104 feet), respectively.

Additional testing and demonstration of HHU capabilities were demonstrated at 100-N adjacent to the Columbia River and at the Vista work site adjacent to Z-1A and Z-9 Cribs near the Plutonium Finishing Plant in the 200 West Area. At 100-N, eight small diameter, 2.54 centimeter (1-inch) outside diameter polyvinyl chloride monitoring wells were constructed in five working days. Four wells were pushed and constructed at depths of 5.2 to 5.5 meters (17 to 18-feet) BGS and four were pushed and constructed at depths of 8.2 to 8.5 meters (27 to 28-feet) BGS. At the Vista site, attempts were made to push the borehole tubing to refusal. In these two attempts the tubing was advanced to 28.0 and 33.5 meters (92 and 110-feet) BGS before refusal conditions were encountered. Testing activities were concluded February 15, 2005, and all equipment was returned to the Energy*Solutions* lay-down area for cleaning and maintenance.

There were 21 field days of testing at the Mock Tank Site, five in-field days placing small diameter monitoring wells at the 100-N site and eight days performing total penetration depth testing at the Vista Z-9 Project Site adjacent to Plutonium Finishing Plant for a total of 34 in-field testing days. At the conclusion of the testing phase, minor modifications to the angle control and location procedures were completed prior to mobilization for the C-152 angle borehole driving under the 241-C-152 Diversion Box. Drilling and Sampling Daily Work Records recording this testing are in Appendix H.

4.0 ANGLE SAMPLING AND RELATED ACTIVITIES AT 241-C-152 DIVERSION BOX

Using ground-penetrating radar and existing as-built infrastructure drawings, three push locations were identified and selected for angle borehole exploration within the C Tank Farm near the 241-C-152 Diversion Box. Two pushes, each at different degrees of angle, were conducted at each location. Detailed information regarding these pushes (i.e.; coordinates, azimuth and depth) is located in Appendix I, "DTS-DOW-016, *Description of Work: Direct Push Angle Hole Exploration 241-C-152 Diversion Box*, Rev. 1."

4.1 FIELD DEPLOYMENT

Field activities for the 241-C-152 angle push investigation were initiated February 27, 2006, and concluded June 9, 2006. Excluding the initial three weeks that it took for site setup and

administrative issues for tank farm entry, a total of 56 field days was required to place the exploratory boreholes, collect gyroscope and geophysical log data, collect CH2M HILL-directed soil samples and decommission the boreholes. There were 118 hours of recorded down time. Detailed explanations for down time are available in Appendix J, "Drilling and Sampling Daily Work Records—Angle Boreholes," and Appendix K, "Explanation of Down Time for Angle Boreholes."

4.2 SAMPLING

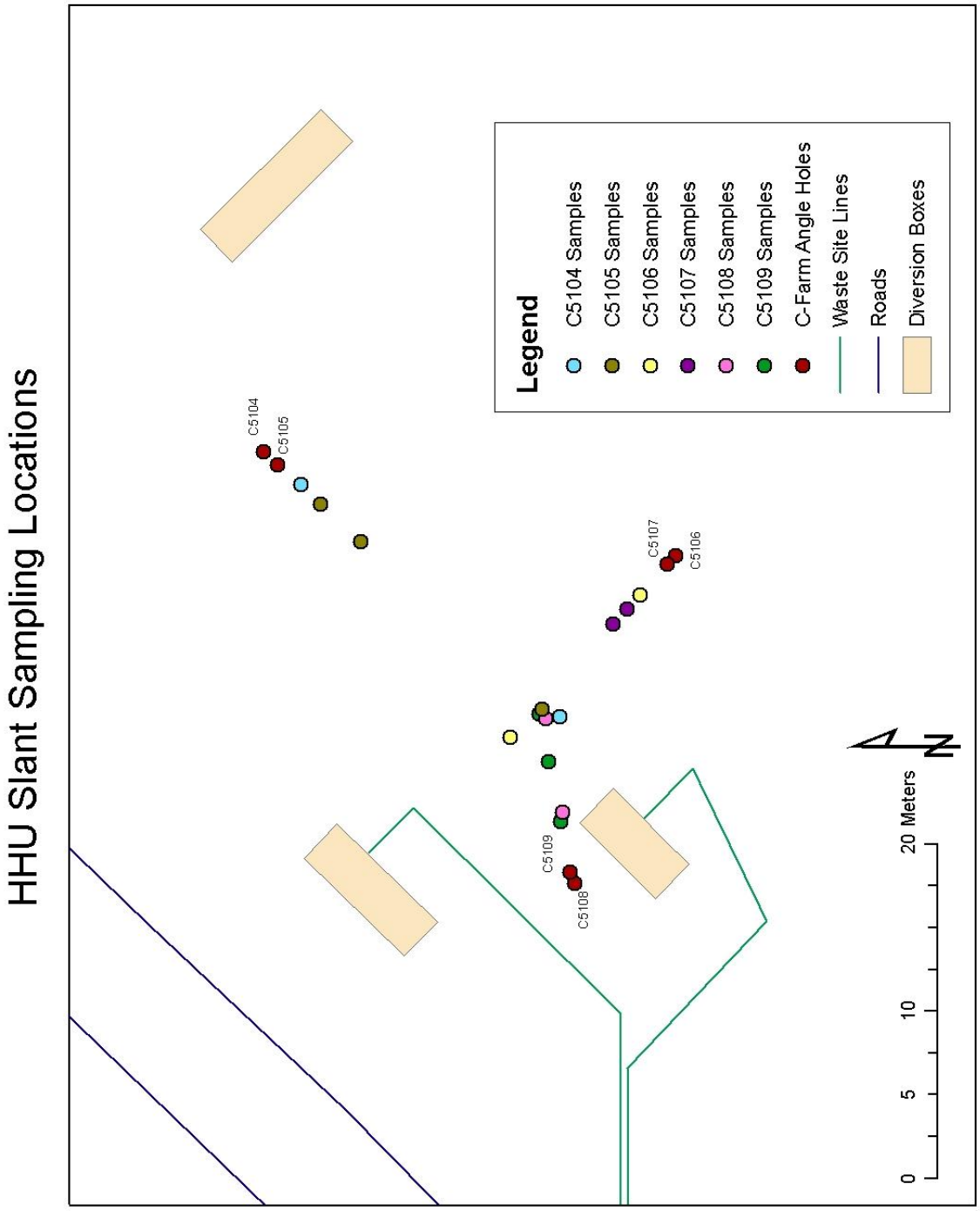
Samples were obtained from each of the six angle boreholes using the same methodology as the vertical boreholes. Each angle borehole was also used for sampling rather then pushing a second, dedicated sample borehole. See Table 3 and Figure 6, "HHU Slant Sample Locations," for vertical borehole sample-related information. Sampling logbook entries and Chain of Custody forms for the angle samples are located in Appendix L.

Table 3. Sample Intervals for C Farm Angle Boreholes.

	Borehole Hole #	Sample Date	Ground surface Elevation (m)	Pipe Run Length Sample Collection (ft)	Elevation of Sample bottom of "Shoe" (m)	Sample Number	Recovery
22	C5108	3/23/2006	203.15	28	195.71	B1HY25	100%
23	C5108	3/29/2006	203.15	66	185.62	B1HY26	100%
24	C5109	3/31/2006	203.19	14.5	200.04	B1HY27	35%
25	C5109	4/4/2006	203.19	31.5	196.36	B1HY28	50%
26	C5109	4/6/2006	203.19	45	193.43	B1HY29	100%
27	C5106	4/11/2006	203.06	18.5	198.28	B1HY30	100%
28	C5106	4/17/2006	203.06	90	179.79	B1HY31	100%
29	C5107	4/19/2006	203.08	17	199.39	B1HY32	100%
30	C5107	4/20/2006	203.08	22.5	198.2	B1HY33	100%
31	C5107	4/26/2006	203.08	59	190.28	B1HY34	100%
32	C5104	5/2/2006	201.76	13.5	198.91	B1HY35	100%
33	C5104	5/17/2006	201.76	108.5	178.82	B1HY36	100%
34	C5105	5/25/2006	201.75	13	199.6	B1JFP2	75%
35	C5105	5/26/2006	201.75	26	197.62	B1JFP3	100%
36	C5105	6/5/2006	201.75	83	188.55	B1JFP4	100%

NOTE: Length of sampler and shoe is 2.08 feet.

Figure 6. HHU Slant Sampling Locations.



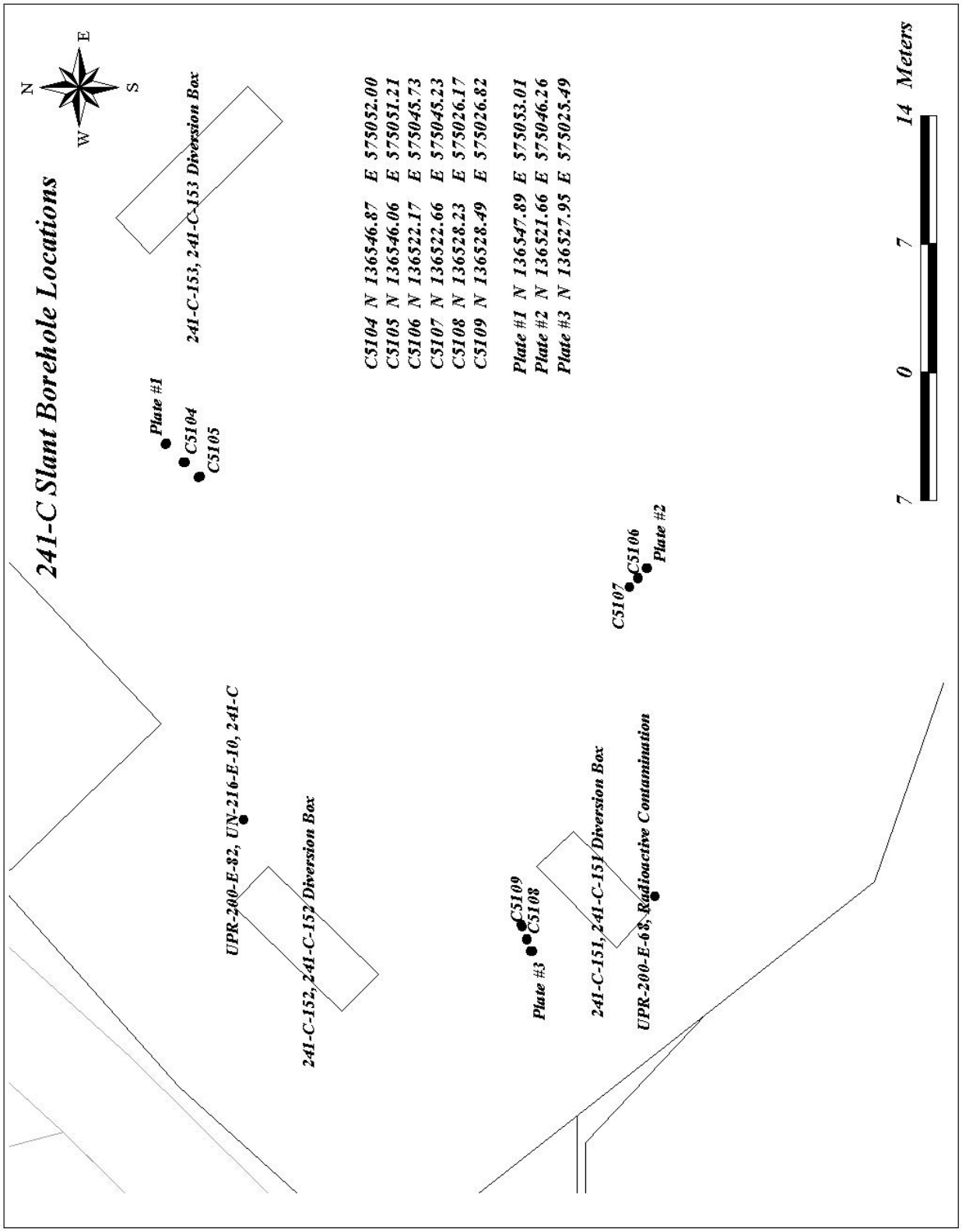
4.3 BOREHOLE GYROSCOPE GEOPHYSICAL ACTIVITIES

Because of the accuracy required for the angle boreholes due to underground structures, each borehole was gyroscope surveyed to ensure minimal deviation was occurring. In addition to the gyroscope data collection, gross gamma and neutron-neutron moisture logging were conducted in these six boreholes. Gyroscope surveys, logging reports, and three-dimensional maps for the six angle boreholes are located in Appendix M, "Small Diameter Slant-Hole Logging at the C-152 Diversion Box." The coordinates, elevations and a map showing completed push locations/boreholes for the angle boreholes are provided in Table 4 and Figure 7.

Table 4. C Farm Direct Push Surface Coordinates and Elevations (Angle).

Location	Northing	Easting	Elevation
C5104	136546.9	575052.0	201.744
C5105	136546.1	575051.2	201.744
C5106	136522.2	575045.7	203.004
C5107	136522.7	575045.2	203.004
C5108	136528.2	575026.2	203.218
C5109	136528.5	575026.8	203.218

Figure 7. 241-C Slant Borehole Locations.



4.4 RESISTIVITY PROBE PLACEMENT

Of the six angle boreholes pushed at the C-152 Diversion Box, only borehole C5107 was selected for resistivity probe installation. A resistivity probe was placed at a depth of 18.4 meters (60.5 feet) measured in pipe run length, or at an actual depth of 13.01 meters (42.68 feet) BGS. For probe placement, the drive tip was knocked out of the bottom of the tubing, and the tubing back pulled approximately 1.52 meter (5 feet). The borehole was filled with silica sand from bottom to the depth at which the resistivity probe was to be placed. The resistivity probe was placed and additional silica sand (approximately 1.52 meter [5 feet]) was then added to the borehole, encasing the probe in sand. Saline water (7.57 liters [2-gallons]) was then added. Bentonite crumbles were then placed from above the silica sand to surface while back pulling the tubing. A protective steel casing was cemented in place approximately 30.48 centimeters (12 inches) deep at the surface to protect the protruding probe wiring.

4.5 WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTATION

Decommissioning of all the boreholes was conducted in accordance with the *Washington Administrative Code* (WAC) 173-160 requirements. For decommissioning the boreholes, the tip was knocked out, and then the casing was back pulled while material was simultaneously added to the casing until it reached the surface. In accordance with DTS-DOW-016, Rev. 1, the location of each borehole was recorded using a Trimble 5800 Global Positioning Satellite Survey System. The recorded coordinates were placed on a map showing their locations in direct relation to the 241-C-151, 241-C-152 and 241-C-153 Diversion Boxes. The coordinates, elevations and a map showing completed push locations/boreholes for vertical boreholes are provided above. Appendix N contains copies of the Washington State Department of Ecology documentation prepared for submittal relating to the angle push activities surrounding the 241-C Diversion Boxes.

5.0 ENVIRONMENTAL, SAFETY AND HEALTH

During the 241-C-152 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 O, “Safety Documentation.” 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

DOE/RL-99-36, 2000, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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

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

RHO-CD-673, 1979, *Handbook 200 Area Waste Sites, Volume 1*, Rockwell Hanford Operations, Richland, Washington.

RPP-7578, 2002, *Site-Specific SST Phase 1 RFI/CMS Work Plan Addendum for WMAs T and TX-TY,* Rev. 2, Jacobs Engineering Group, Inc., Richland, Washington.

RPP-32073, *Completion Report for C4297 (C-105) C Tank Farm Drilling and Sampling*, Rev. 0, Energy*Solutions* Technical Services, Richland, Washington.

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

APPENDIX A

DTS-DOW-010, DESCRIPTION OF WORK: CONE PENETROMETER EXPLORATION 241-C-152 DIVERSION BOX, REV. 0

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DTS-DOW-010, Rev. 0

DESCRIPTION OF WORK: CONE PENETROMETER EXPLORATION 241-C-152 DIVERSION BOX

K. D. Reynolds

April 2004

Prepared for CH2M HILL Hanford Group, Inc.

By
Sampling and Well Services
Duratek Technical Services

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TABLE

Table 1. Push Location C Number and Coordinates 4

TERMS

BGS	below ground surface
CH2M HILL	CH2M HILL Hanford Group, Inc.
CPT	Cone Penetrometer Truck
DOE	U.S. Department of Energy
DTS	Duratek Technical Services
ES&H	Environmental Safety and Health
ID	inside diameter
OD	outside diameter
pCi/g	picocuries per gram
RCRA	*Resource Conservation and Recovery Act of 1976*
RPP	River Protection Project
Well ID	Well identification number

DTS-DOW-010, Rev. 0

DESCRIPTION OF WORK: CONE PENTROMETER INVESTGATION
241-C-152 DIVERTER BOX

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) assigned the River Protection Project (RPP) Single-Shell Tank Program the tasks of transferring waste from the Single-Shell Tanks to Double-Shell Tanks, and developing and implementing a strategy to retrieve Single-Shell Tank and Miscellaneous Underground Storage Tank waste. In support of the eventual retrieval of this waste, the Single-Shell Tank Program Vadose Zone Project was given responsibility for collecting and providing sub-surface data from the single-shell tank farm facilities. This data is intended to provide an understanding of the distribution and movement of contaminants in the vadose zone under and adjacent to the tank farms. Subsequently, a work plan was prepared to collect field characterization data in and near Waste Management Area C. This planned activity is intended to support decision-making relative to DOE/RL-99-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*. RPP-11608, *Site-Specific Single Shell Tank Phase 1 RCRA Facility/Corrective Action Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U*, was necessary to identify and plan characterization efforts as part of DOE/RL-99-36.

Documented in the addendum for Waste Management Areas C, A-AX, and U are the data requirement goals identified through a data quality objective process. The outlined goals include the tasks, project responsibilities and schedules for the characterization efforts. One of the field characterization efforts identified is the collection of vadose zone data from the installation of a borehole adjacent to the 241-C-152 Diverter Box valve and underground piping assembly. Because of infrastructure and contamination concerns a series of Cone Penetrometer Truck (CPT) push holes are planned near the 241-C-152 Diverter Box to evaluate subsurface conditions prior to location and drilling of the planned borehole. The push locations will be utilized to determine the near surface (e.g., 0 to 9+ m [0 to 30+ ft] BGS) vertical and lateral extent of Cs-137 contamination in the vicinity of the C-152 Diversion Box. The CPT data gathering is designed to accomplish the following.

- Identify the areal extent of a locally identified paleosol layer.
- Identify areal and vertical extent of the shallow soil contamination.
- Quantify the contamination levels of the gamma-emitting nuclides as a guide for placement of the planned vadose borehole.
- Provide soil samples for laboratory analysis of the soil contamination levels.

The purpose of this description of work is to define the methodology to be utilized and actions for performance of the CPT activities. These are the activities:

- Identify the locations near 241-C-152.
- Identify procedures to be utilized during CPT operations.
- Identify geophysical information-gathering tools and methodologies.

- Identify sampling instructions.
- Provide push (exploratory) and sampling hole tracking, decommissioning and identification instructions.

Section 8.0 contains the pertinent references for procedures and requirements necessary for guidance of this scope of work. The collection of sediment samples at prescribed intervals is a portion of the scope included. The following sections describe the planned activities and methodologies utilized to identify push locations and operations. This document is intended to be included as an attachment to 2W-03-0792, *Tank Farm Work Instruction, C-152 Direct Push*, detailing tank farm operations required for support of the work scope.

1.1 241-C-152 BACKGROUND

The 241-C-152 Diverter Box is located in the northwest corner of the 241-C Tank Farm. This valve control and pipe system was designed to route waste liquids from the facilities to individual tank runs and to control the pumping of liquids between tanks and from tanks to reprocessing facilities. In 1969 line V-122 adjacent to the 241-C-152 Diverter Box is documented to have leaked an estimated volume of approximately 9,842 L (2,600 gal) of B plant waste during a transfer. Information documenting the release and data gathered during a subsequent field investigation are contained in the Unplanned Release (UPR-200-E-82). It was estimated that during the release approximately 378 L (100 gal) of the 9,842 L (2,600 gal) were lost from the broken/failed pipe surfaced near the valve box structure. This contaminated surface was covered with clean gravel and subsequently covered with cement. Calculations indicate that 11,300 Ci of Cs-137 were lost to the soil during the release. Based on the samples recovered during the field investigation calculations indicate that the maximum concentrations in the soil were 550 µCi/g at approximately 3.7 m (12 ft) below the original surface grade. The Unplanned Release Report also describes a "caliche" or moisture-retarding layer approximately 15.2 cm (0.5 ft [6 in.]) in thickness located 3.9 to 4.3 m (13 to 14 ft) below the original ground surface. Regional stratigraphic analysis and facies studies of Hanford-related geology indicate that the described caliche is more likely a shallow subsurface paleosol (a soil development horizon rich in calcium carbonate that became buried in subsequent flood gravel and/or aeoilian sand deposition). The areal extent of this fluid-retarding layer is not documented.

2.0 METHODOLOGY

The method selected to outline the vertical and horizontal extent of contamination is a CPT-mounted push system. For this application, points (locations) for investigation (exploration) are selected through an iterative process as outlined below. At the locations selected an exploratory push will be attempted to a target depth of 30 ft BGS or refusal (as defined by the operating directions and procedures of Precision Sampling, Inc.). The exploratory push will be conducted with 6.4 cm (2.5 in.) outside diameter (OD), 4.8 cm (1.9-in.) inside diameter (ID) push tubing (rods). When the push is at maximum depth, a Bismuth Germanium Oxide and a neutron moisture gage will be deployed inside the tubing to gather data for investigation of the sediments surrounding the push rods. Duratek Technical Services (DTS) and CH2M HILL Hanford Group, Inc. (CH2M HILL)

technical personnel will review the field data; and, if conditions are appropriate, a candidate sampling location will be identified.

If no significant contamination or geologic features of interest are identified from field-derived data, it is at the CH2M HILL Technical Representative's discretion to choose not to sample and instead to move to the next identified preselected location. In either case (move to sample or move to explore a new site) the exploratory push hole will be decommissioned per applicable WAC 173-160 requirements (e.g., filled with bentonite or bentonite/cement grout as required) as the push tubing is extracted. The CPT will be moved to the next predetermined and mapped location (See Figure 2) or moved 30 to 61 cm (1 to 2 ft) to preclude the subsequent sampling push from reentering the exploratory push pathway for the sampling effort. An approximate 4.44 cm (1.75 in.) OD/4.27 cm (1.68 in.) ID sampling and push rod system will be deployed for sample collection. When the sampling push achieves the selected target depth a 1.2 m (4-ft) long by 4.27 cm (1.68-in.) OD, the sample will be attempted, the sample rods withdrawn and the soil sample will be packaged and transported to the selected laboratory for analysis. The sampling push hole will be decommissioned per WAC 173-160 requirements.

3.0 PUSH LOCATIONS

Twenty push locations with five alternates have been identified in the vicinity of the 241-C-152 Diverter Box (See Figures 1 and 2 and Table 1 below). These locations were selected through an iterative process utilizing ground-penetrating radar scan data and as-built infrastructure drawing reviews. The two data sets were compared and sites for CPT locations were selected based on the highest level of confidence achievable on review of specific locations and ground scan trace comparisons. The coordinates of the locations, determined from the global positioning satellite (GPS) and generated grid mapping utilized for the ground-penetrating radar operations and drawings review were plotted on CAD drawings. These coordinates will be located in the field by use of global positioning satellite instrumentation. Push locations will be documented on Well Information Reports/Field Activity Reports/Field Log Books. In addition to the coordinate position of the probe location, the documentation will contain the push depth, geophysical log suite conducted, volume of material utilized for decommissioning purposes 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) As each push rod length is added to the string during advancement, the length will be measured and recorded on the applicable field documentation sheet. The length will be recorded to the nearest 100th of a foot.

All primary (exploratory) and sampling push location activities will be tracked and documented on Field Activity Reports or Field Log Books by referencing the Well identification number (Well ID) provided in Table 1 and on Figure 2. If the collection of a sample is attempted, a unique Well ID number will be utilized to track the push location and the sample will be identified with that Well ID number on the label and on the shipping documentation. Each sample depth/location is identified as an offset from the exploratory push that identified the depth of interest. That is, if a zone of interest is identified during the exploratory push at a listed coordinate position the sampling push unique number is the original ID number plus one. (e.g., If a zone of interest is identified during pushing at location 1 in Table 1, Well ID C 4401, the Well ID of the subsequent sampling push is C 4402.) The

unique Well ID numbers for all of the original 20 push locations are listed, and 20 unique sample push Well ID numbers have been assigned and reserved for use at the C-152 Diversion Box Investigation by the Hanford Site Well Coordinator.

Table 1. Push Location C Number and Coordinates.

Location	Well ID Number	Northing	Easting
1	C 4401	N 136546.61	E 575030.51
2	C 4403	N 136544.41	E 575021.85
3	C 4405	N 136537.91	E 575015.46
4	C 4407	N 134530.36	E 575023.00
5	C 4409	N 136528.20	E 575027.29
6	C 4411	N 136520.64	E 575032.68
7	C 4413	N 136520.01	E 575036.32
8	C 4415	N 136521.67	E 575042.39
9	C 4417	N 136521.67	E 575044.55
10	C 4419	N 136527.05	E 575049.95
11	C 4421	N 136527.04	E 575052.10
12	C 4423	N 136520.57	E 575054.24
13	C 4425	N 136529.18	E 575058.56
14	C 4427	N 136541.10	E 575061.88
15	C 4429	N 136533.56	E 575060.79
16	C 4431	N 136537.21	E 575068.77
17	C 4433	N 136538.98	E 575055.39
18	C 4435	N 136543.19	E 575053.13
19	C 4437	N 136549.60	E 575048.74
20	C 4439	N 136551.73	E 575046.56
Alternate Push Points			
A1	C 4441	N 136529.28	E 575026.21
A2	C 4443	N 136512.00	E 575034.84
A3	C 4445	N 136550.66	E 575047.65
A4	C 4447	N 136547.51	E 575055.24
A5	C 4449	N 136519.50	E 575051.01

DTS-DOW-010, Rev. 0

Figure 1. General Location Map.

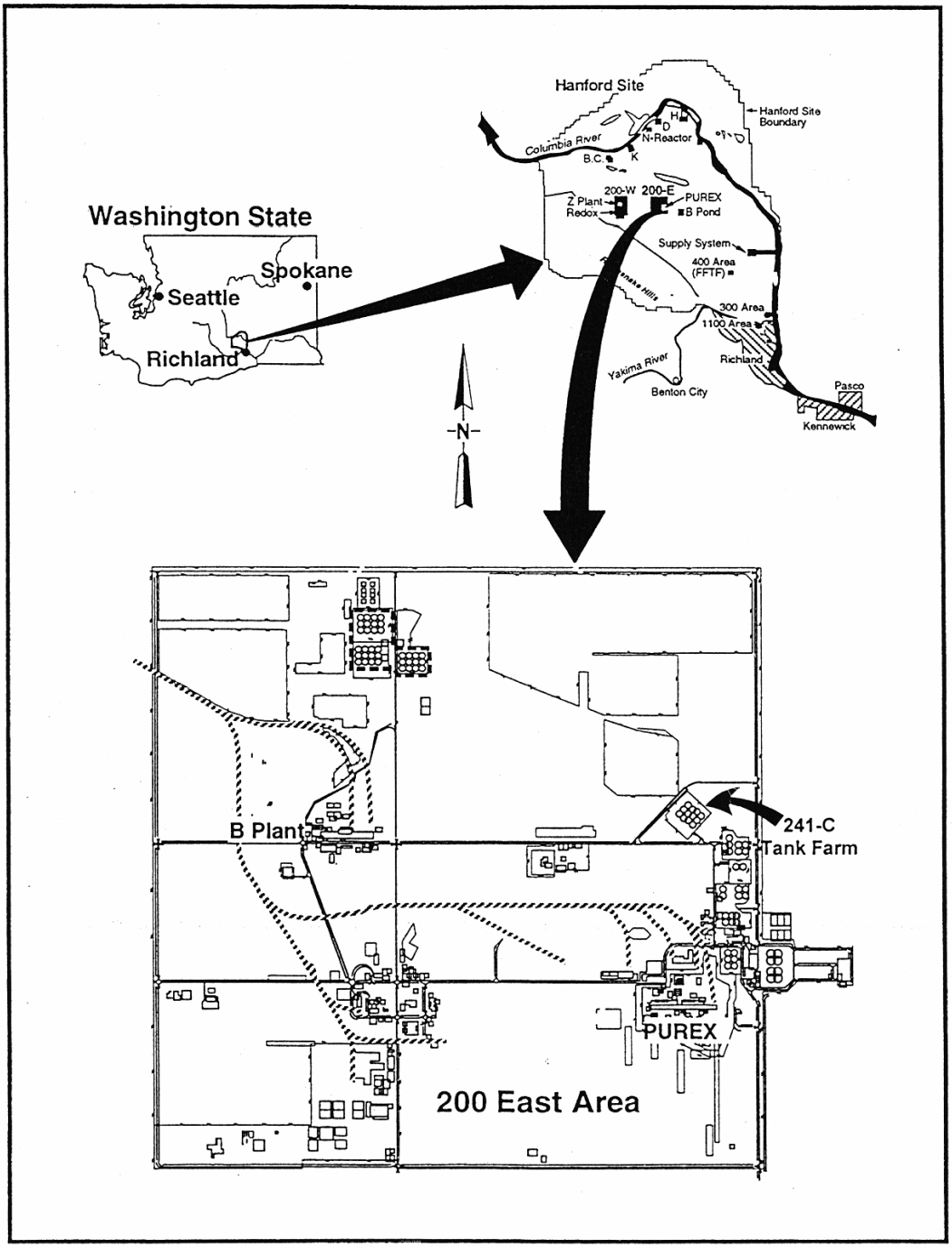

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Figure 2. C-152 Diversion Box Vehicle Route Map for Cone Penetrometer Locations.

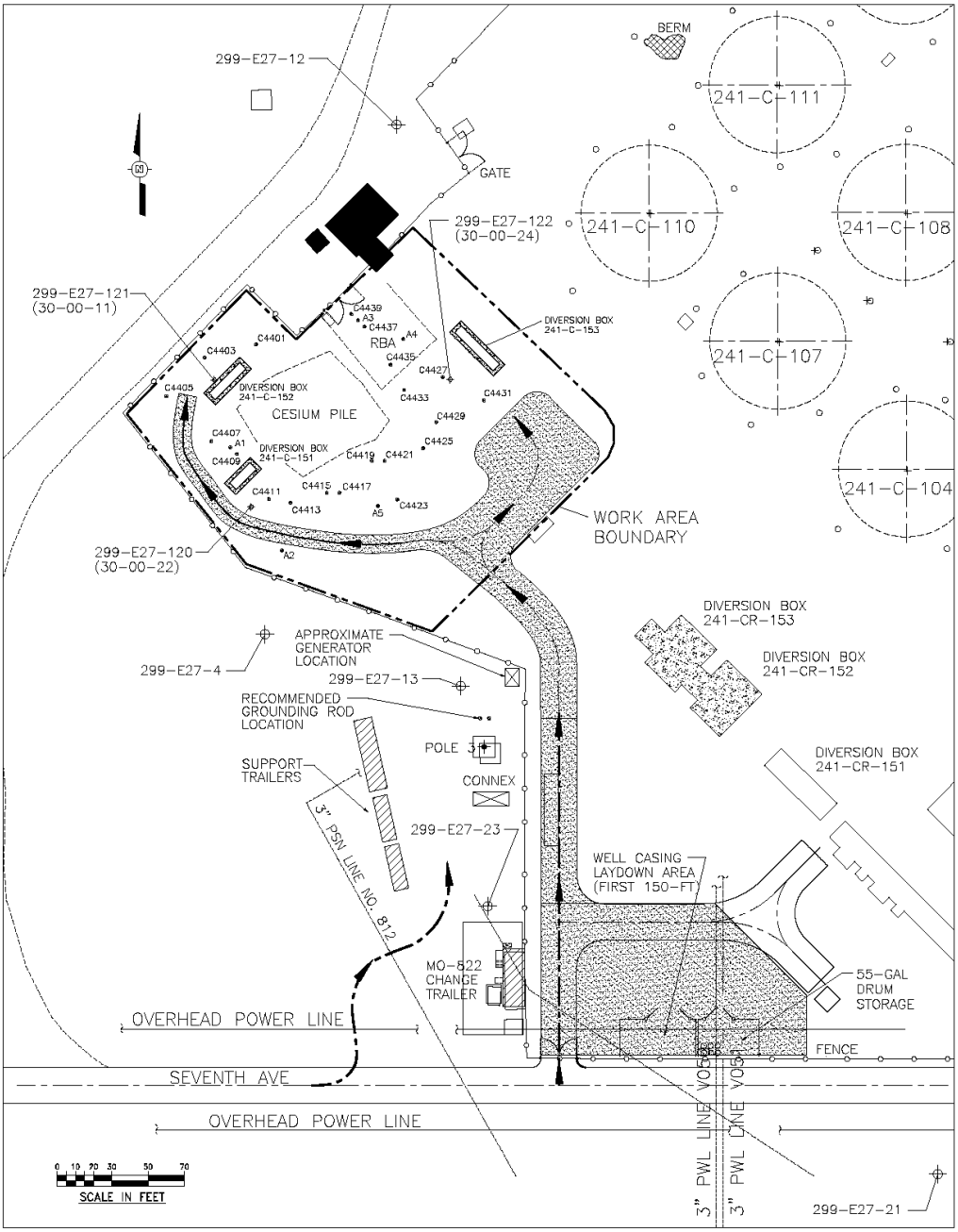

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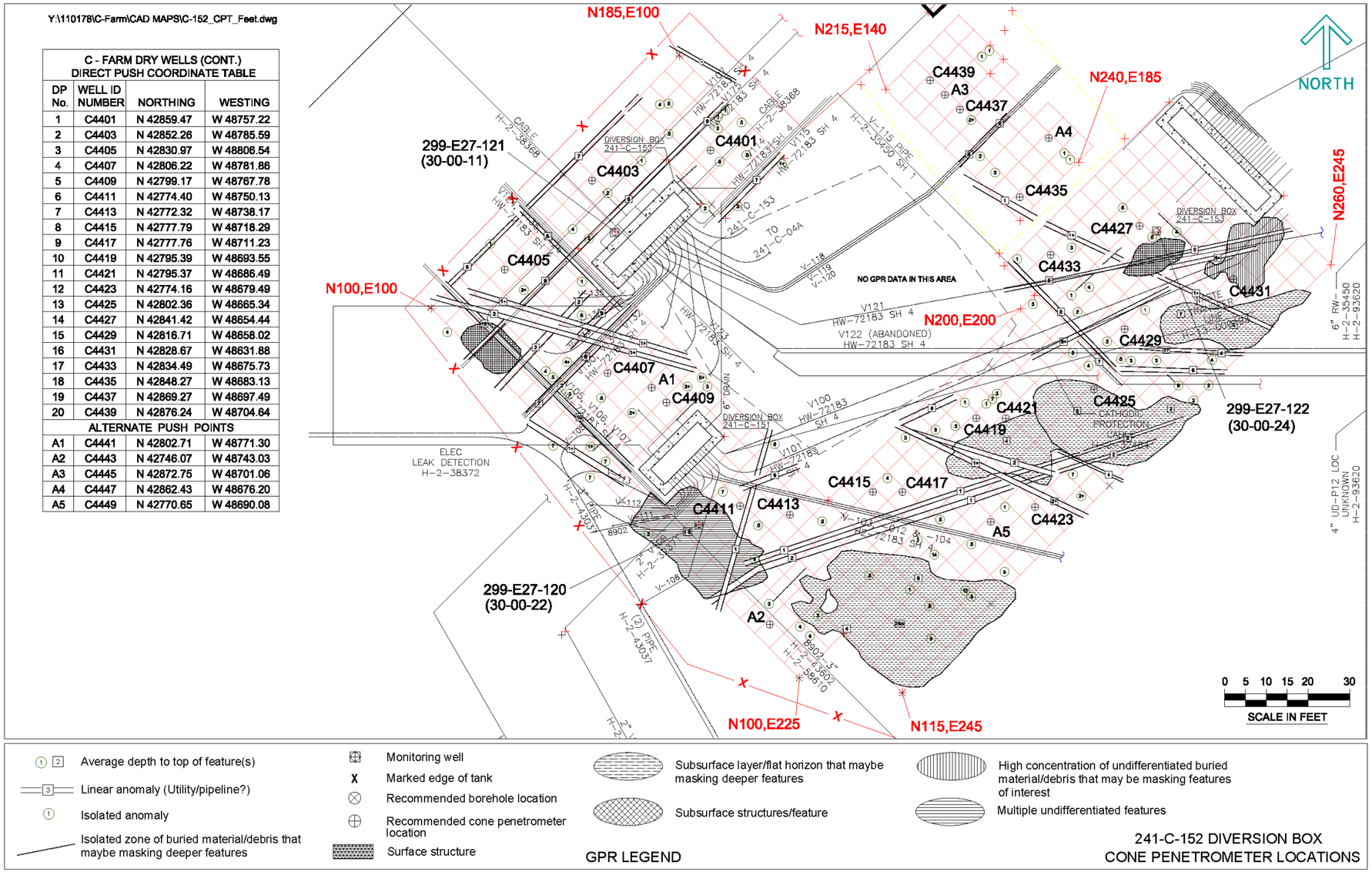
Figure 3. C-152 Area Map—Push Locations.



C - FARM DRY WELLS (CONT.) DIRECT PUSH COORDINATE TABLE			
DP No.	WELL ID NUMBER	NORTHING	WESTING
1	C4401	N 42859.47	W 48757.22
2	C4403	N 42852.26	W 48785.59
3	C4405	N 42830.97	W 48806.54
4	C4407	N 42806.22	W 48781.86
5	C4409	N 42799.17	W 48767.78
6	C4411	N 42774.40	W 48750.13
7	C4413	N 42772.32	W 48738.17
8	C4415	N 42777.79	W 48718.29
9	C4417	N 42777.76	W 48711.23
10	C4419	N 42795.39	W 48693.55
11	C4421	N 42795.37	W 48686.49
12	C4423	N 42774.16	W 48679.49
13	C4425	N 42802.36	W 48665.34
14	C4427	N 42841.42	W 48654.44
15	C4429	N 42816.71	W 48658.02
16	C4431	N 42828.67	W 48631.88
17	C4433	N 42834.49	W 48675.73
18	C4435	N 42848.27	W 48683.13
19	C4437	N 42869.27	W 48697.49
20	C4439	N 42876.24	W 48704.64
ALTERNATE PUSH POINTS			
A1	C4441	N 42802.71	W 48771.30
A2	C4443	N 42746.07	W 48743.03
A3	C4445	N 42872.75	W 48701.06
A4	C4447	N 42862.43	W 48676.20
A5	C4449	N 42770.65	W 48690.08

Average depth to top of feature(s)
Linear anomaly (Utility/pipeline?)
Isolated anomaly
Isolated zone of buried material/debris that maybe masking deeper features
Monitoring well
Marked edge of tank
Recommended borehole location
Recommended cone penetrometer location
Surface structure
Subsurface layer/flat horizon that maybe masking deeper features
Subsurface structures/feature
High concentration of undifferentiated buried material/debris that may be masking features of interest
Multiple undifferentiated features

GPR LEGEND

241-C-152 DIVERSION BOX
CONE PENETROMETER LOCATIONS

4.0 WORK TASKS

4.1 SITE SETUP

The CPT equipment will be mobilized into the tank farm and set up over the pre-selected and marked locations (See Figure 2 above). A pre-survey of the truck and equipment will be conducted prior to tank farm entry. As noted above, ground-penetrating radar scans and as-built drawing reviews and comparisons have been completed for proper selection of the push points. The CPT equipment is a truck-mounted mobile unit. Support equipment to be utilized during field activities will be mobilized as needed into the work area. A forklift will transport needed support equipment to and from the push locations.

To avoid surface structures and conform to tank farm routing restrictions and procedures, a path will be mapped into the tank farm from the entry point to the mapped push locations (See Tank Farm Work Package 2W-03-0792 "C Farm Direct Push" and Figure 3 above). Tank farm personnel will be required to guide the equipment onto location and for subsequent movement of the unit to the listed push locations. Movement of the forklift will be on the prescribed route.

4.1.1 Contamination Control

Tank farms radiological control technicians and nuclear chemical operators will be onsite at all times to support work activities. Contamination control measures will consist of laying spill protection material beneath the equipment (when required), placing rubber matting and plastic sheeting on and around the truck (where deemed necessary), and restricting site entry by unnecessary personnel. These measures will be implemented upon mobilization of the CPT equipment to the Hanford Site and prior to and during tank farm activities. 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 placed into the hole by use of the hydraulic ram system. The push locations have been positioned to avoid impacting known/mapped structures. As the mapped points are investigated all due caution and careful observation of the push advance rates and resistance will be observed to preclude damage to any tank farm infrastructures should the as-built drawings be in error. If rod advance indicates that obstructions are present, push advance will stop, the CPT and work area will be placed in safe condition and the Vadose Project Engineer (Harold Sydnor) or his designee will be notified. If during push operations the push point is deemed to be "at refusal" as defined by the operating directions and procedures of Precision Sampling, Inc., the depth will be noted in the Field Activity Report/Field Log Book and the next sequential task as defined in the Methodology section will be performed.

All CPT activities will conform to the sections of the CPT subcontractor's operating directions and procedures that relate to the particular 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. Any decontamination required will be performed by CH2M HILL tank farm qualified Nuclear Chemical Operators. The sealing requirements for decommissioning of the direct 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 utilized.

1. Fast scan Bismuth Germanium Oxide gross gamma logging.
2. Extended count time spectral (Bismuth Germanium Oxide) gamma logging for selected intervals as deemed necessary.
3. Neutron-Moisture.

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

5.0 SAMPLING

5.1 SAMPLING PROCESS

When the CH2M HILL Technical Point of Contact has selected a sampling interval for investigation, the CPT rig will be moved approximately 30 to 61 cm (1 to 2 ft) from the decommissioned exploratory push hole and a sampling push rod string will be deployed. At the depth selected by review of the geophysical information four 4.27 cm (1.68-in.) ID by 15 cm (6-in.) long stainless steel liners contained within a rod-delivered sampling system will be advanced through the selected depth interval. The sampler will be retrieved to surface and the liners removed and capped.

After retrieval of the samplers 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 exceeds 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. All applicable DTS procedures, U.S. Environmental Protection Agency/*Resource Conservation and Recovery Act of 1976* (RCRA) protocols and Radiation Work Permit restrictions

and requirements will be followed for this activity. Each sample will be clearly labeled with the push location number (well ID number), unique sample number, date and time of collection and depth from which the material was retrieved. A chain of custody, as per DTS-referenced procedures, will be completed for all sediment samples and equipment rinseate materials collected and transported to the assigned laboratory. All referenced applicable DTS sampling procedures will be adhered to during soil and rinseate sampling operations.

5.2 CLEANING

For quality control purposes, all materials (e.g. sample liners, material retaining baskets [finger baskets], sample caps) utilized for the performance of sampling activities will be cleaned utilizing U.S. Environmental Protection Agency guidelines/specifications as referenced in the *Resource Conservation and Recovery Act of 1976.* Materials utilized for push advance purposes (e.g., push rods, tips) will be high pressure washed utilizing an approved non-phosphate cleaner. The push materials will be visibly clean of dirt, grease and other possible contamination, which would potentially provide for cross-contamination of retrieved samples. After cleaning, the materials will be protected from unwanted contamination from surface and push operation related chemicals by covering with plastic or other acceptable materials and tracked by use of cleaning certification documentation.

The stainless steel sampler liners, sampler drive shoes, drive tips and retainer baskets of the samplers will be cleaned using standard U.S. Environmental Protection Agency/RCRA protocol methods in accordance with DTS-SSPM-001, *Sampling Services Procedures Manual,* Section SP 2-5, "Laboratory Cleaning of Sampling Equipment."

5.3 FIELD DUPLICATES/RINSEATE SAMPLES

A field duplicate sample will be collected for every 20 samples collected or, at a minimum, a field duplicate will be collected matching 5% of the total samples collected. It is estimated that a total of 20 intervals will be selected for sampling and a minimum of one "Field Duplicate" sample will be required. This sample will be labeled as "Field Duplicate" in addition to the information required by DTS-SSPM-001, Procedures SP 1-1, SP 1-5, and SP 2-6 and as noted in Section 5.1 above.

Additional equipment rinseate blanks are required for analysis purposes. These will consist of one rinseate sample from one cleaned sampler and liner set before first use. Details of the appropriate volume, container and preservation requirements have been provided by the CH2M HILL technical point of contact to the laboratory and DTS sampling personnel.

5.4 EXPLORATION AND SAMPLING PUSH HOLE DECOMMISSIONING

Applicable *Washington Administrative Code* requirements contained in *Minimum Standards for Construction and Maintenance of Wells,* WAC 173-160 (Ecology 1998) will be utilized to control and guide actions for decommissioning of the sampling and exploratory probe holes. As

activities progress, each probe and sampling hole will be filled with bentonite, a bentonite slurry and/or grout (cement/bentonite mixture of materials) during the push rod extraction process.

6.0 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM

The primary concern for DTS and the client (CH2M HILL) is the safety of personnel assigned to perform activities within the 241-C Tank Farm facility. The C Tank Farm is noted for odor and/or vapor emission potential, and some portions of the fenced area are under entry restrictions due to potential worker exposures. To address these issues and assure that all DTS, CH2M HILL, and applicable *Occupational Safety and Health Act of 1970* safety and health requirements are applied and adhered to during the field operations, a C Tank Farm-specific Health and Safety Plan has been prepared. See *C Tank Farm/Tank Farm Vadose Zone Project Health and Safety Plan* (DTS 2003). In addition to the Health and Safety Plan, a job-specific Activity Hazard Analysis outlining the specific activity hazards and the mitigation methodologies has been prepared. The documentation governing the operation of the CPT rig, sampling, and decommissioning activities (AHA-04-004-SAWS, *Activity Hazard Analysis, C Tank Farm Cone Penetrometer Testing [CPT]*, Rev. 1 or most current revision) is included as a portion of the CH2M HILL Tank Farm Work Package.

Both DTS Safety and CH2M HILL Tank Farm Industrial Hygiene and Safety personnel will survey the job site for safety and health compliance. DTS personnel and safety representatives will be onsite during all drilling, sampling and decommissioning/construction activities to ensure compliance with the guidance outlined in the Activity Hazard Analysis.

DTS 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 DTS employees but also to DTS subcontractors. Job site safety rules and procedures, radiological control requirements and procedures, as well as WAC 173-160, as amended, *Occupational Safety and Health Act of 1970* standards and client-identified standards will be observed. These requirements are communicated to everyone associated with the project (visitors included) using the DTS Activity Hazard Analysis. The Activity Hazard Analysis is part of the DTS Environmental Safety and Health (ES&H) Program.

ES&H 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 DTS 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 DTS Environmental, Safety and Health 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 are established which, if properly implemented, provide 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 and unplanned releases and exposures.

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 DFSNW-QAM-001, *Quality Assurance Manual*, and the DFSNW-QAP-001, *Quality Assurance Procedures*. All work will be performed in accordance with approved procedures and this work plan.

8.0 REFERENCES

2W-03-0792, *Tank Farm Work Instruction, C-152 Direct Push*, CH2M HILL Hanford Group, Inc., Richland, Washington.

AHA-04-004-SAWS, 2004, *Activity Hazard Analysis, C Tank Farm Cone Penetrometer Testing (CPT)*, most current revision, Duratek Technical Services, Richland, Washington.

DFSNW-QAM-001, *Quality Assurance Manual*, Duratek Federal Services, Inc., Northwest Operations, Richland, Washington.

DFSNW-QAP-001, *Quality Assurance Procedures,* Duratek Federal Services, Inc., Northwest Operations, Richland, Washington.

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

DOE/RL-99-36, 1999, Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DTS-SSPM-001, *Sampling Services Procedure Manual*, Duratek Technical Services, Richland, Washington.
1-1, "Chain of Custody/Sample Analysis Request."
1-5, "Field Logbooks."
2-1, "Bottle Preservation."
2-5, "Laboratory Cleaning of Sampling Equipment."
2-6, "Sample Packing and Shipping."
4-1, "Soil and Sediment Sampling."

RPP-11608, *Site-Specific Single Shell Tank Phase 1 RCRA Facility/Corrective Action Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U*, Draft, CH2M HILL Hanford Group, Inc., Richland, Washington.

DTS, 2003, *C Tank Farm/Tank Farm Vadose Zone Project Health and Safety Plan*, Duratek Technical Services, Richland, Washington.

Ecology, 1998, *Minimum Standards for Construction and Maintenance of Wells*, WAC 173-160, Washington State Department of Ecology, Olympia, 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.

APPENDIX B

DTS-DOW-013, DESCRIPTION OF WORK: DIRECT PUSH EXPLORATION 241-C-152 DIVERSION BOX, REV. 0

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DTS-DOW-013
Revision 0

DESCRIPTION OF WORK: DIRECT PUSH EXPLORATION 241-C-152 DIVERSION BOX

K. D. Reynolds

May 2005

Prepared for CH2M HILL Hanford Group, Inc.

By
Sampling and Well Services
Duratek Technical Services

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TABLE

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TERMS

BGS	below ground surface
CAD	Computer-Aided Design
CH2M HILL	CH2M HILL Hanford Group, Inc.
CPT	cone penetrometer truck
DOE	U.S. Department of Energy
DTS	Duratek Technical Services
ES&H	Environmental Safety and Health
ID	inside diameter
OD	outside diameter
RCRA	*Resource Conservation and Recovery Act of 1976*
RPP	River Protection Project
Well ID	Well identification number

DTS-DOW-013, Rev. 0

DESCRIPTION OF WORK: CONE PENETROMETER INVESTIGATION 241-C-152 DIVERSION BOX

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) assigned the River Protection Project (RPP) Single-Shell Tank Program the tasks of transferring waste from the Single-Shell Tanks to Double-Shell Tanks, and developing and implementing a strategy to retrieve Single-Shell Tank and Miscellaneous Underground Storage Tank waste. In support of the eventual retrieval of this waste, the Single-Shell Tank Program Vadose Zone Project was given responsibility for collecting and providing sub-surface data from the single-shell tank farm facilities. This data is intended to provide an understanding of the distribution and movement of contaminants in the vadose zone under and adjacent to the tank farms. Subsequently, a work plan was prepared to collect field characterization data in and near Waste Management Area C. This planned activity is intended to support decision-making relative to DOE/RL-99-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*. RPP-16608, *Site-Specific Single Shell Tank Phase 1 RCRA Facility/Corrective Action Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U*, was necessary to identify and plan characterization efforts as part of DOE/RL-99-36.

Documented in the addendum for Waste Management Areas C, A-AX, and U are the data requirement goals identified through a data quality objective process. The outlined goals include the tasks, project responsibilities and schedules for the characterization efforts. One of the field characterization efforts identified is the collection of vadose zone data from the installation of a borehole adjacent to the 241-C-152 Diversion Box valve and underground piping assembly. Because of infrastructure and contamination concerns a series of direct push technology investigation holes are planned near the 241-C-152 Diversion Box to evaluate subsurface conditions prior to location and drilling of the planned borehole. The push locations will be utilized to determine the near surface (e.g., 0 to 18+ m [0 to 60+ ft] BGS) vertical and lateral extent of Cs-137 contamination in the vicinity of the C-152 Diversion Box. The direct push data gathering is designed to accomplish the following.

- Identify the areal extent of a locally identified paleosol layer.
- Identify the areal and vertical extent of the shallow soil contamination.
- Quantify the contamination levels of the gamma-emitting nuclides as a guide for placement of the planned vadose borehole.
- Quantify soil moisture content for shallow fine-grained zones located under the diversion box area.
- Provide soil samples for laboratory analysis of the soil contamination levels.

The purpose of this description of work is to define the methodology to be utilized and actions for performing the direct push activities. These are the activities:

- Identify the locations near 241-C-152.
- Identify procedures to be utilized during direct push operations.
- Identify geophysical information-gathering tools and methodologies.
- Identify sampling instructions.
- Provide push (exploratory) and sampling hole tracking, decommissioning and identification instructions.

Section 8.0 contains the pertinent references for procedures and requirements necessary for guidance of this scope of work. The collection of sediment samples at prescribed intervals is a portion of the scope included. The following sections describe the planned activities and methodologies utilized to identify push locations and operations. This document is intended to be included as an attachment to Tank Farm Work Instruction 2W-03-00792/W, *241-C Investigate Vadose Zone Near 241-C-152 Using Direct Push,* which details tank farm operations required for support of the work scope.

This work scope was originally planned and attempted utilizing a heavy weight cone penetrometer truck (CPT). For various reasons, only one probe hole was pushed, interrogated with geophysical tools and subsequently decommissioned. The remainder of the work scope was deferred, the contract closed and the CPT contractor was released. The remaining work scope will be completed utilizing a hydraulic hammer probe driving system mounted on a tractor-type carrier. This method is more mobile and will facilitate potential increased work efficiencies by allowing individual work steps to be completed in parallel.

1.1 241-C-152 BACKGROUND

The 241-C-152 Diversion Box is located in the northwest corner of the 241-C Tank Farm. This valve control and pipe system was designed to route waste liquids from the facilities to individual tank runs and to control the pumping of liquids between tanks and from tanks to reprocessing facilities. In 1969 line V-122 adjacent to the 241-C-152 Diversion Box is documented to have leaked approximately 9,842 L (2,600 gal) of B Plant waste during a transfer. Information documenting the release and data gathered during a subsequent field investigation are contained in the Unplanned Release (UPR-200-E-82). It was estimated that during the release approximately 378 L (100 gal) of the 9,842 L (2,600 gal) were lost from the broken/failed pipe, and liquid surfaced near the valve box structure. This contaminated surface was covered with clean gravel and subsequently covered with cement. Calculations indicate that 11,300 Ci of Cs-137 were lost to the soil during the release. Calculations based on the samples recovered during the field investigation indicate that the maximum concentration in the soil was 550 μCi/g at approximately 3.7 m (12 ft) below the original surface grade. The Unplanned Release Report also describes a "caliche" or moisture-retarding layer approximately 15.2 cm (0.5 ft [6 in.]) in thickness located 3.9 to 4.3 m (13 to 14 ft) below the original ground surface. Regional

stratigraphic analysis and facies studies of Hanford-related geology indicate that the described caliche is more likely a shallow subsurface paleosol (a soil development horizon rich in calcium carbonate that became buried in subsequent flood gravel and/or aeolian sand deposition). The areal extent of this fluid-retarding layer is not documented.

2.0 METHODOLOGY

The method selected to outline the vertical and horizontal extent of contamination is a hydraulic hammer-driven direct push system mounted on a tractor type carrier. For this application, points (locations) for investigation (exploration) are selected through an iterative process as outlined below. At the locations selected, an exploratory push will be attempted to a target depth of 9 to 18 m (30 to 60 ft) BGS (at the direction of the CH2M HILL Hanford Group, Inc., [CH2M HILL] Technical Representative) or refusal (as defined by the operating directions and/or procedures of Duratek Technical Services [DTS]). The exploratory push will be conducted with 6.4 cm (2.5 in.) outside diameter (OD), 4.45 cm (1.75 in.) inside diameter (ID) push tubing (rods). When the push is at maximum depth, a Bismuth Germanium Oxide and a neutron moisture gage will be deployed inside the tubing to gather data for investigation of the sediments surrounding the push rods. DTS and CH2M HILL technical personnel will review the field data; and, if conditions are appropriate, a candidate sampling location will be identified.

If no significant contamination or geologic features of interest are identified from field-derived data, it is at the CH2M HILL Technical Representative's discretion to choose not to sample and instead to move to the next identified, preselected location. In either case (move to sample or move to explore a new site) the exploratory push hole will be decommissioned per applicable WAC 173-160 requirements (e.g., filled with bentonite or bentonite/cement grout as required) as the push tubing is extracted. The direct push carrier will be moved to the next predetermined and mapped location (See Figure 2) or moved 30 to 61 cm (1 to 2 ft) to preclude the subsequent sampling push from reentering the exploratory push pathway for the sampling effort. A 6.4 cm (2.5 in.) OD x 4.45 cm (1.75in) ID sampling and push rod system will be deployed for sample collection. When the sampling push achieves the selected target depth a .457 m (1.5 ft) long x 4.22 cm (1.66 in.) OD x 3.51 cm (1.38 in.) ID sample collection will be attempted, and the sample rods withdrawn. The soil sample will be packaged and transported to the selected laboratory for analysis. The sampling push hole will be decommissioned per WAC 173-160 requirements.

3.0 PUSH LOCATIONS

Twenty push locations with five alternates were originally identified in the vicinity of the 241-C-152 Diversion Box (See Figures 1 and 2 and Table 1 below). These locations were selected through an iterative process utilizing ground-penetrating radar scan data and as-built infrastructure drawing reviews. The two data sets were compared and sites for CPT locations were selected based on the highest level of confidence achievable on review of specific locations and ground scan trace comparisons. The coordinates of the locations, determined from the global positioning satellite and generated grid mapping utilized for the ground-penetrating radar operations and drawings review were plotted on Computer-Aided Design (CAD) drawings. These coordinates will be located in the field by use of global positioning satellite instrumentation. Push locations will be documented on Well Information Reports/Field Activity Reports/Field Logbooks. In addition to the coordinate position of the probe location, the documentation will contain the push depth, geophysical log suite conducted, volume of material utilized for decommissioning purposes 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) As each push rod length is added to the string during advancement, the length will be measured and recorded on the applicable field documentation sheet. The length will be recorded to the nearest 100th of a foot.

All primary (exploratory) and sampling push location activities will be tracked and documented on Field Activity Reports or Field Logbooks by referencing the Well identification number (Well ID) provided in Table 1 and Figure 2. If the collection of a sample is attempted, a unique Well ID number will be utilized to track the push location and the sample will be identified with that Well ID number on the label and on the shipping documentation. Each sample depth/location is identified as an offset from the exploratory push that identified the depth of interest. That is, if a zone of interest is identified during the exploratory push at a listed coordinate position the sampling push unique number is the original ID number plus one. (e.g., If a zone of interest is identified during pushing at location 1 in Table 1, Well ID C 4401, the Well ID of the subsequent sampling push is C 4402.) The unique Well ID numbers for all of the original 20 push locations are listed, and 20 unique sample push Well ID numbers have been assigned and reserved for use at the C-152 Diversion Box Investigation by the Hanford Site Well Coordinator. As stated above, push location C 4401 was interrogated during fiscal year 2004 by use of a CPT unit and subsequently decommissioned. The remaining 19 locations and alternates (if necessary to meet data objectives) will be investigated during the fiscal year 2005 deployment.

Table 1. Push Location C Number and Coordinates.

Location	Well ID Number	Northing	Easting
1 Completed	C 4401	N 136546.61	E 575030.51
2	C 4403	N 136544.41	E 575021.85
3	C 4405	N 136537.91	E 575015.46
4	C 4407	N 134530.36	E 575023.00
5	C 4409	N 136528.20	E 575027.29
6	C 4411	N 136520.64	E 575032.68
7	C 4413	N 136520.01	E 575036.32
8	C 4415	N 136521.67	E 575042.39
9	C 4417	N 136521.67	E 575044.55
10	C 4419	N 136527.05	E 575049.95
11	C 4421	N 136527.04	E 575052.10
12	C 4423	N 136520.57	E 575054.24
13	C 4425	N 136529.18	E 575058.56
14	C 4427	N 136541.10	E 575061.88
15	C 4429	N 136533.56	E 575060.79
16	C 4431	N 136537.21	E 575068.77
17	C 4433	N 136538.98	E 575055.39
18	C 4435	N 136543.19	E 575053.13
19	C 4437	N 136549.60	E 575048.74
20	C 4439	N 136551.73	E 575046.56
Alternate Push Points			
A1	C 4441	N 136529.28	E 575026.21
A2	C 4443	N 136512.00	E 575034.84
A3	C 4445	N 136550.66	E 575047.65
A4	C 4447	N 136547.51	E 575055.24
A5	C 4449	N 136519.50	E 575051.01

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Figure 1. General Location Map.

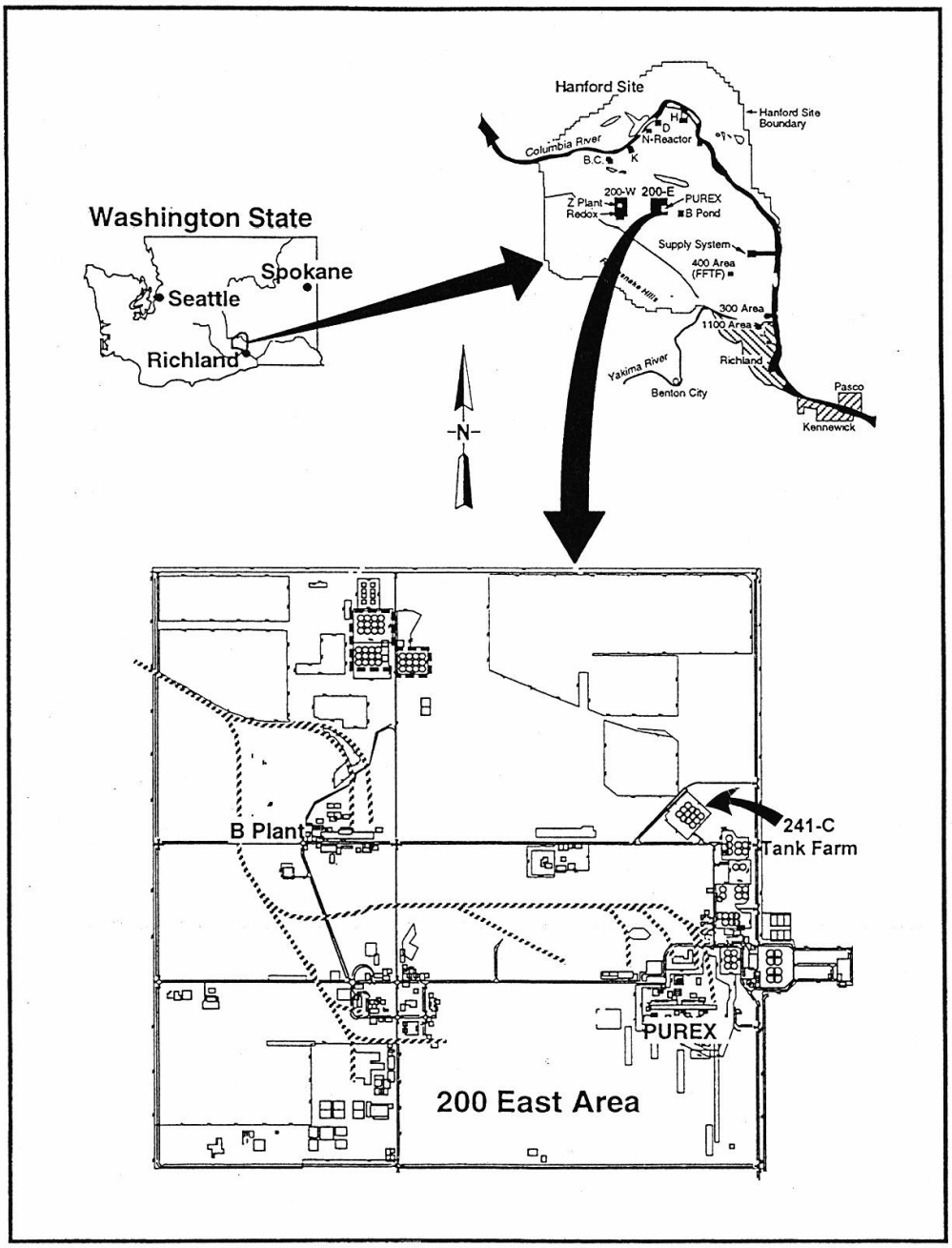


Figure 2. C-152 Diversion Box Vehicle Route Map for Cone Penetrometer Locations.

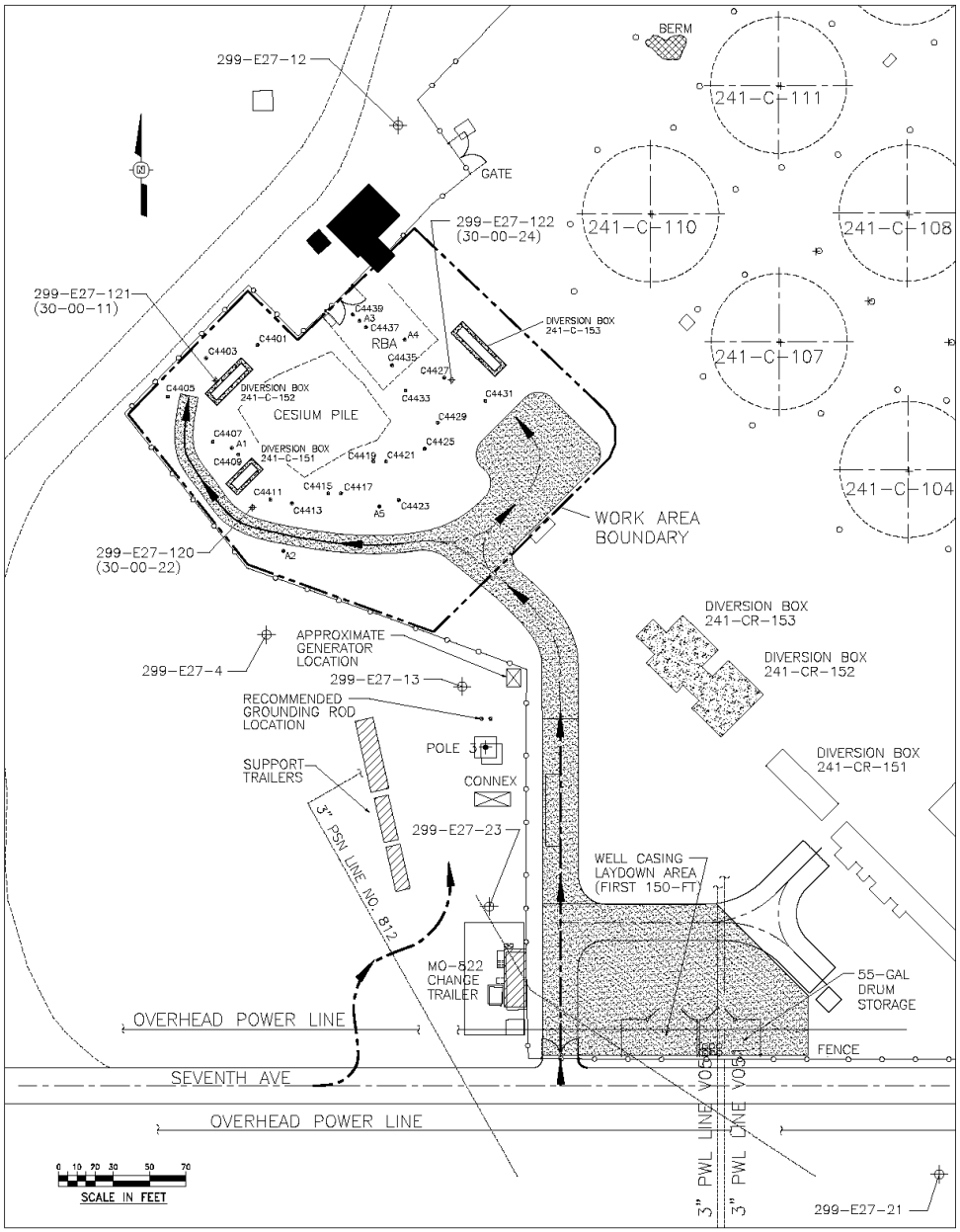
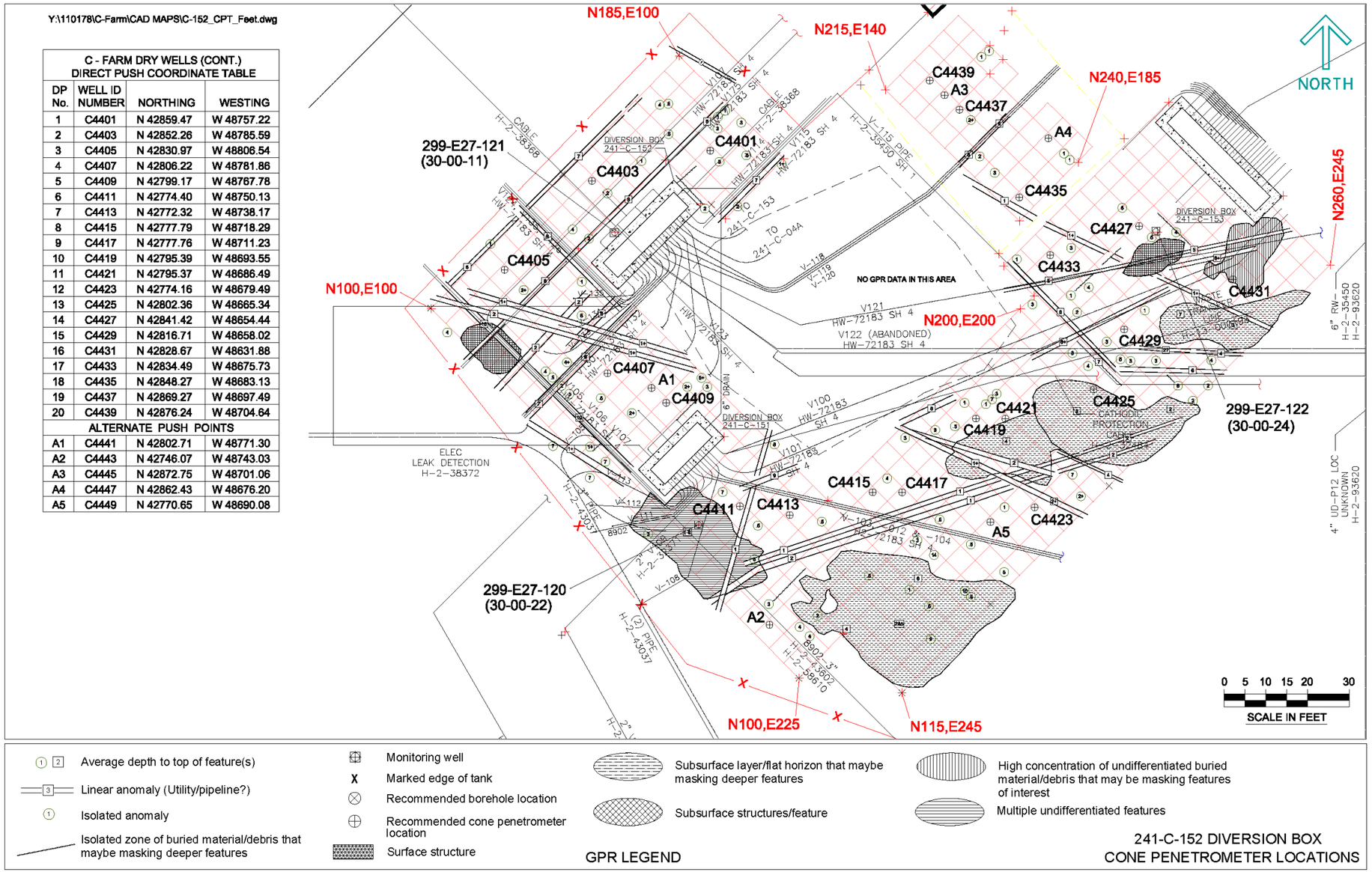


Figure 3. C-152 Area Map—Push Locations.



C - FARM DRY WELLS (CONT.) DIRECT PUSH COORDINATE TABLE			
DP No.	WELL ID NUMBER	NORTHING	WESTING
1	C4401	N 42859.47	W 48757.22
2	C4403	N 42852.26	W 48785.59
3	C4405	N 42830.97	W 48806.54
4	C4407	N 42806.22	W 48781.86
5	C4409	N 42799.17	W 48767.78
6	C4411	N 42774.40	W 48750.13
7	C4413	N 42772.32	W 48738.17
8	C4415	N 42777.79	W 48718.29
9	C4417	N 42777.76	W 48711.23
10	C4419	N 42795.39	W 48693.55
11	C4421	N 42795.37	W 48686.49
12	C4423	N 42774.16	W 48679.49
13	C4425	N 42802.36	W 48665.34
14	C4427	N 42841.42	W 48654.44
15	C4429	N 42816.71	W 48658.02
16	C4431	N 42828.67	W 48631.88
17	C4433	N 42834.49	W 48675.73
18	C4435	N 42848.27	W 48683.13
19	C4437	N 42869.27	W 48697.49
20	C4439	N 42876.24	W 48704.64
ALTERNATE PUSH POINTS			
A1	C4441	N 42802.71	W 48771.30
A2	C4443	N 42746.07	W 48743.03
A3	C4445	N 42872.75	W 48701.06
A4	C4447	N 42862.43	W 48676.20
A5	C4449	N 42770.65	W 48690.08

Average depth to top of feature(s)
Linear anomaly (Utility/pipeline?)
Isolated anomaly
Isolated zone of buried material/debris that maybe masking deeper features
Monitoring well
Marked edge of tank
Recommended borehole location
Recommended cone penetrometer location
Surface structure
Subsurface layer/flat horizon that maybe masking deeper features
Subsurface structures/feature
High concentration of undifferentiated buried material/debris that may be masking features of interest
Multiple undifferentiated features

GPR LEGEND

241-C-152 DIVERSION BOX
CONE PENETROMETER LOCATIONS

4.0 WORK TASKS

4.1 SITE SETUP

The direct push equipment will be mobilized into the tank farm and set up over the pre-selected and marked locations (See Figure 2 above). A pre-survey of the carrier and equipment will be conducted prior to tank farm entry. As noted above, ground-penetrating radar scans and as-built drawing reviews and comparisons have been completed for proper selection of the push points. The direct push equipment is a hydraulic hammer and mast that are mounted on a mobile tractor (back hoe type) unit. Support equipment to be utilized 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.

To avoid surface structures and conform to tank farm routing restrictions and procedures, a path will be mapped into the tank farm from the entry point to the mapped push locations (See Tank Farm Work Instruction 2W-03-00792/W, and Figure 3 above). Tank farm personnel will be required to guide the equipment onto location and for subsequent movement of the unit to the listed push locations. Movement of the forklift will be on the prescribed route.

4.1.1 Contamination Control

Tank farms radiological control technicians and nuclear chemical operators will be onsite at all times to support work activities. Contamination control measures will consist of laying spill protection material beneath the equipment (when required), placing rubber matting and plastic sheeting on and around the carrier and drive system (where deemed necessary), and restricting site entry by unnecessary personnel. These measures will be implemented upon mobilization of the direct push equipment to the Hanford Site and prior to and during tank farm activities. 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 placed into the hole by use of the hydraulic hammer system. The push locations have been positioned to avoid impacting known/mapped structures. As the mapped points are investigated all due caution and careful observation of the push advance rates and resistance will be observed to preclude damage to any tank farm infrastructures should the as-built drawings be in error. If rod advance indicates that obstructions are present, push advance will stop, the direct push unit and work area will be placed in safe condition and the Vadose Project Engineer (Harold Sydnor) or his designee will be notified. If during push operations the push point is deemed to be “at refusal” as defined by the operating directions and procedures of DTS, the depth will be noted in the Field Activity Report/Field Logbook and the next sequential task as defined in the Methodology section will be performed.

All direct push activities 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. Any decontamination required will be performed by CH2M HILL tank farm qualified Nuclear Chemical Operators. The sealing requirements for decommissioning of the direct push holes are defined in the appropriate sections of WAC-173-160, "Minimum standards for construction and maintenance of wells."

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 utilized.

1. Fast scan Bismuth Germanium Oxide gross gamma logging.
2. Extended count time spectral (Bismuth Germanium Oxide) gamma logging for selected intervals as deemed necessary.
3. Neutron-Moisture.

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

5.0 SAMPLING

5.1 SAMPLING PROCESS

When the CH2M HILL Technical Point of Contact has selected a sampling interval for investigation, the direct push rig will be moved approximately 30 to 61 cm (1 to 2 ft) from the decommissioned exploratory push hole and a sampling push rod string will be deployed. At the depth selected by review of the geophysical information two 4.22 cm (1.66 in.) OD x 3.89 cm (1.53 in.) ID x 22.86 cm (9 in.) long stainless steel liners contained within a rod-delivered sampling system will be advanced through the selected depth interval. The sampler will be retrieved to surface and the liners removed and capped.

After retrieval of the samplers 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 exceeds 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. All applicable DTS procedures, U.S. Environmental

Protection Agency/*Resource Conservation and Recovery Act of 1976* (RCRA) protocols and Radiation Work Permit restrictions and requirements will be followed for this activity. Each sample will be clearly labeled with the push location number (well ID number), unique sample number, date and time of collection and depth from which the material was retrieved. A chain of custody, as per DTS-referenced procedures, will be completed for all sediment samples and equipment rinseate fluids collected and transported to the assigned laboratory for analysis. All referenced applicable DTS sampling procedures will be adhered to during soil and rinseate sampling operations.

5.2 CLEANING

For quality control purposes, all materials (e.g., sample liners, material retaining baskets [finger baskets], sample caps) utilized for the performance of sampling activities will be cleaned utilizing U.S. Environmental Protection Agency guidelines/specifications as referenced in the *Resource Conservation and Recovery Act of 1976.* Materials utilized for push advance purposes (e.g., push rods, tips) will be high pressure washed utilizing an approved non-phosphate cleaner. The push materials will be visibly clean of dirt, grease and other possible contamination, which would cause potential cross-contamination of retrieved samples. After cleaning, the materials will be protected from unwanted contamination from surface and push operation-related chemicals by covering with plastic or other acceptable materials and tracked by use of cleaning certification documentation.

The stainless steel sampler liners, sampler drive shoes, drive tips and retainer baskets of the samplers will be cleaned using standard U.S. Environmental Protection Agency/RCRA protocol methods in accordance with DTS-SSPM-001, *Sampling Services Procedures Manual,* Section SP 2-5, "Laboratory Cleaning of Sampling Equipment."

5.3 RINSEATE SAMPLES

An equipment rinseate blank is required for analysis purposes. This will consist of one rinseate sample from one cleaned sampler and liner set before first use. Details of the appropriate volume, container and preservation requirements have been provided by the CH2M HILL technical point of contact to the laboratory and DTS sampling personnel.

5.4 EXPLORATION AND SAMPLING PUSH HOLE DECOMMISSIONING

Applicable *Washington Administrative Code* requirements contained in *Minimum Standards for Construction and Maintenance of Wells,* WAC 173-160 (Ecology 1998) will be utilized to control and guide actions for decommissioning of the sampling and exploratory probe holes. As activities progress, each probe and sampling hole will be filled with bentonite, a bentonite slurry and/or grout (cement/bentonite mixture of materials) during the push rod extraction process.

6.0 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM

The primary concern for DTS and the client (CH2M HILL) is the safety of personnel assigned to perform activities within the 241-C Tank Farm facility. The C Tank Farm is noted for odor and/or vapor emission potential, and some portions of the fenced area are under entry restrictions due to potential worker exposures. To address these issues and assure that all DTS, CH2M HILL, and applicable *Occupational Safety and Health Act of 1970* safety and health requirements are applied and adhered to during the field operations, a C Tank Farm-specific Health and Safety Plan has been prepared. See *C Tank Farm/Tank Farm Vadose Zone Project Health and Safety Plan* (DTS 2003). In addition to the Health and Safety Plan, a job-specific Activity Hazard Analysis outlining the specific activity hazards and the mitigation methodologies has been prepared. The documentation governing decommissioning activities, sampling, and the operation of the CPT rig (AHA-05-003, *Activity Hazard Analysis, C-152 Direct Push Investigation, Rev. 1* or most current revision) is included as a portion of the CH2M HILL Tank Farm Work Package.

Both DTS Safety and CH2M HILL Tank Farm Industrial Hygiene and Safety personnel will survey the job site for safety and health compliance. DTS personnel and safety representatives will be onsite during all drilling, sampling and decommissioning/construction activities to ensure compliance with the guidance outlined in the Activity Hazard Analysis.

DTS 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 DTS employees but also to DTS subcontractors. Job site safety rules and procedures, radiological control requirements and procedures, as well as WAC 173-160, as amended, *Occupational Safety and Health Act of 1970* standards and client-identified standards will be observed. These requirements are communicated to everyone associated with the project (visitors included) using the DTS Activity Hazard Analysis. The Activity Hazard Analysis is part of the DTS Environmental Safety and Health (ES&H) Program.

ES&H 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 DTS 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 DTS Environmental, Safety and Health 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.
- All 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 are established which, if properly implemented, provide 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 and unplanned releases and exposures.

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 DTS-QAM-001, *Quality Assurance Manual*, and the DTS-QAP-001, *Quality Assurance Procedures*. All work will be performed in accordance with approved procedures and this work plan.

8.0 REFERENCES

2W-00792/W2, *Tank Farm Work Instruction, 241-C Investigate Vadose Zone Near 241-C-152 Using Direct Push*, CH2M HILL Hanford Group, Inc., Richland, Washington.

AHA-05-003, *Activity Hazard Analysis, C-152 Direct Push Investigation*, most current revision, Duratek Technical Services, Richland, Washington.

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

DOE/RL-99-36, 1999, Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DTS-QAM-001, *Quality Assurance Manual*, Duratek Technical Services, Richland, Washington.

DTS-QAP-001, *Quality Assurance Procedures,* Duratek Technical Services, Richland, Washington.

DTS-SSPM-001, *Sampling Services Procedure Manual*, SP 2-5, "Laboratory Cleaning of Sampling Equipment," Duratek Technical Services, Richland, Washington.

RPP-16608, 2004, *Site-Specific Single Shell Tank Phase 1 RCRA Facility/Corrective Action Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U*, Rev. 1, CH2M HILL Hanford Group, Inc., Richland, Washington.

WAC-173-160, "Minimum standards for construction and maintenance of wells," *Washington Administrative Code*, as amended.

DTS, 2003, *C Tank Farm/Tank Farm Vadose Zone Project Health and Safety Plan*, Duratek Technical Services, Richland, Washington.

Ecology, 1998, *Minimum Standards for Construction and Maintenance of Wells*, WAC 173-160, Washington State Department of Ecology, Olympia, 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.

APPENDIX C

DRILLING AND SAMPLING DAILY WORK RECORDS (VERTICAL BOREHOLES)

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Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C4403/C4405	*WELL NUMBER*: N/A	*REPORT NUMBER*: 1	*DATE:* July 1, 2005 (Friday)
CONTRACT NUMBER: 24196	*START CARD NO*: S27610	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: Start Driving Probes C4403 and C4405	*REFERENCE*: DTS-DOW-013, R 0	*LOCATION*: C Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*T OTAL SHIFT FOOTAGE*: 80.8		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	1.0 ft	OS

BORING DEPTH (include sampling depth): N/A

C4403: 0 to 58.8 ft
C4405: 0 to 22 ft.

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
2.0 Hours

WEATHER CONDITIONS (373-2716)
No Issues with Weather

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Drive String Length	= N/A

SAMPLE SUMMARY
N/A

OPERATOR: K. Olson
M. Repko, D. Dudley, S. Snook (Op.) K Hartielius (HPT) L. Stevens CHG; S. Worley (EnergySolutions);
H. Syndor (Project Manager)

TIME FROM	TO	
07:00	07:30	Work Package on site at 07:50.
07:30	09:15	Pre-job safety, RWP issues with full time coverage when pushing probes. Not required.
09:15	12:00	Drove probe #C4403 to 58.8 ft. Rods are tight (slowed penetration rate) at 20 to 22 ft.
12:00	13:00	Moved plastic and felt to boring #C4405, moved HHU to C4405. Hand carried rods in farm.
13:00	14:00	Lunch
14:00	15:00	Drove probe to 22 ft (C4405). Rods are tight (slowed penetration rate) at 18 to 20 ft.
15:00		Picked up drive parts.
	16:30	Review work package for upcoming work.

REPORT BY: S.H. Worley
TITLE : Duratek Field Supervisor
SIGNATURE: Dwl E Shoffer for

REVIEWED BY: KD Reynolds
TITLE: Project Manager
DATE: 12-13-06
SIGNATURE: Olin Amos for

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4405/C4407	*WELL NUMBER*: N/A	*REPORT NUMBER*: 2	*DATE:* July 5, 2005 (Tuesday)
CONTRACT NUMBER: 24196	*START CARD NO*: S27610	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: Driving Probes C4405 and C4407	*REFERENCE*: DTS-DOW-013, R 0	*LOCATION*: C Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*T OTAL SHIFT FOOTAGE*: 31.5		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	1.0 ft	OS

BORING DEPTH (include sampling depth): N/A

C4405: 0 to 31.5 ft
C4407: 0 to 22 ft.

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
3.5 Hours

WEATHER CONDITIONS (373-2716)
Implemented Work/Rest Regime

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Drive String Length	= N/A

SAMPLE SUMMARY
N/A

OPERATOR: K. Olson
M. Repko, D. thompson (Op.)
D. Judy (HPT) L. Stevens CHG;
S. Worley (EnergySolutions);
H. Syndor (Project Manager)

TIME FROM	TO	
07:00	07:30	Work Package on site.
07:30	09:30	Wait for HPT's. Pre-job, safety and dress for farm.
09:30		Drove probe #C4405 to 31.5 ft.
		Moved plastic and felt to boring #C4407, moved HHU to C4407.
	12:00	Drove probe to 22 ft (C4407). Rods are tight (slowed penetration rate) at 20 to 22 ft.
12:00	13:00	Lunch
13:00	16:30	Shut down due to heat issues. Temperature is 85 degrees which calls for 15/45. It was determined these are not favorable workinbg conditions so the work was shut down for the afternoon.

REPORT BY: S.H. Worley
TITLE : Duratek Field Supervisor
SIGNATURE: David E Shoghi for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE:
SIGNATURE: Olin Anne for 12-13-06

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C4407	*WELL NUMBER*: N/A	*REPORT NUMBER*: 3	*DATE:* July 6, 2005 (Wednesday)
CONTRACT NUMBER: 24196	*START CARD NO*: S27610	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: Driving Probes C4407	*REFERENCE*: DTS-DOW-013, R 0	*LOCATION*: C Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*T OTAL SHIFT FOOTAGE*: 0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	1.0 ft	OS

BORING DEPTH (include sampling depth): N/A

C4407: N/A

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
9.0 Hours

WEATHER CONDITIONS (373-2716)
Wind shut down Farm Work

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Drive String Length	= N/A

SAMPLE SUMMARY

N/A

OPERATOR: K. Olson

M. Repko, D. Thompson (Op.)
D. Judy (HPT) L. Stevens CHG;
S. Worley (EnergySolutions);

H. Syndor (Project Manager)

TIME FROM	TO	
07:00		Work Package on site.
	12:00	Wind issues (20 – 30 MPH). No Farm entrance.
12:00	12:30	Lunch
12:30	16:30	Wind issues (20 – 30 MPH). No Farm entrance.

REPORT BY: S.H. Worley
TITLE : Duratek Field Supervisor
SIGNATURE: Dal E Shoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager
DATE:
SIGNATURE: Olin Anor for 12-19-06

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4407/C4409	*WELL NUMBER*: N/A	*REPORT NUMBER*: 4	*DATE:* July 7, 2005 (Thursday)
CONTRACT NUMBER: 24196	*START CARD NO*: S27610	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: Driving Probes C4407 and C4409 and logging	*REFERENCE*: DTS-DOW-013, R 0	*LOCATION*: C Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*T OTAL SHIFT FOOTAGE*: 67.9 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	1.0 ft	OS

BORING DEPTH (include sampling depth): N/A

C4407: 22 to 58.9 ft
C4409: 0 to 31 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
3.0 Hours

WEATHER CONDITIONS (373-2716)
Wind shut down Farm Work

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Drive String Length	= N/A

SAMPLE SUMMARY
N/A

OPERATOR: K. Olson
D. Curry, S. Snook (Op.) D. Judy (HPT) L. Stevens CHG; S. Worley (EnergySolutions);B. Randall (NW Geophysics)
H. Syndor (Project Manager)

TIME FROM	TO	
07:00	10:00	S. Worley and D. Curry in Carrier air training. K. Olson in Waste Handling Seg. Class.
10:00	10:30	Pick-up masks and racks.
10:30	11:00	Pre-job, safety. B. Randall logging (Moisture) at C4403.
11:00		Drove probe C4407 from 22 to 58.9 ft. Rods are tight (penetration slowed at 22 to 24 ft).
		Moved plastic and felt to boring C4409. Moved HHU to C4409. Hand carried rods in farm.
	16:30	Drove probe C4409 to 31 ft. Rods are tight (penetration slowed at 24 to 26 ft).

REPORT BY: S.H. Worley
TITLE : Duratek Field Supervisor
SIGNATURE: Dave Shaglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager
DATE: 12-13-06
SIGNATURE: Olin Cone for

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4411	*WELL NUMBER*: N/A	*REPORT NUMBER*: 5	*DATE:* July 8, 2005 (Friday)
CONTRACT NUMBER: 24196	*START CARD NO*: S27610	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: Driving Probes C4411 and logging	*REFERENCE*: DTS-DOW-013, R 0	*LOCATION*: C Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*T OTAL SHIFT FOOTAGE*: 42 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	1.0 ft	OS

BORING DEPTH (include sampling depth): N/A

C4411: 0 to 42 ft.

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

Noise monitoring set up 2 hr.
Wind issues: 4 hrs
WEATHER CONDITIONS (373-2716)
Wind shut down Farm Work @ 12:00

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Drive String Length	= N/A

SAMPLE SUMMARY

N/A

OPERATOR: K. Olson

D. Curry, S. Snook (Op.) D. Judy (HPT) L. Stevens CHG; S. Worley (EnergySolutions);B. Randall (NW Geophysics)

H. Syndor (Project Manager)

TIME FROM	TO	
07:00	9:00	Picking up noise monitoring equipment.
09:00	09:30	Pre-job, safety review, wait for HPT's.
09:30	10:00	Enter Farm. B. Randall logging (Gamma) at C4403.
10:00		Moved plastic and felt to boring C4411. Moved HHU to C4411.
	12:00	Drove probe C4411 to 42 ft. Pin failed in haed – replaced.
12:00	13:00	Lunch
13:00	13:30	B. Randall in farm to retrieve logging equipment.
13:30	16:30	Stored source in temporary storage. Wind to strong to continue.
		Gamma logging complete at C4403 and C4405.

REPORT BY: S.H. Worley
TITLE : Duratek Field Supervisor
SIGNATURE: Dan E Shoghi for

REVIEWED BY: KD Reynolds
TITLE: Project Manager
DATE:
SIGNATURE: Olin Cann for 12-13-06

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C4411	*WELL NUMBER*: N/A	*REPORT NUMBER*: 6	*DATE:* July 11, 2005 (Monday)
CONTRACT NUMBER: 24196	*START CARD NO*: S27610	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: Driving Probes C4411 and logging	*REFERENCE*: DTS-DOW-013, R 0	*LOCATION*: C Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*T OTAL SHIFT FOOTAGE*: 23.1 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	1.0 ft	OS

BORING DEPTH (include sampling depth): N/A

C4411: 42 to 65.1 ft.

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
Rig service repair – 1.5 hrs

WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Drive String Length	= N/A

SAMPLE SUMMARY
N/A

OPERATOR: K. Olson
D. Curry, S. Snook (Op.) D. Judy; L. Stevens (HPT); S. Worley (EnergySolutions);B. Randall (NW Geophysics)
H. Syndor (Project Manager)

TIME FROM	TIME TO	
		Grave yard shift starts
11:30	12:30	Discuss activities, moisture log on C4405. Rig service.
		Pre-job, safety review, wait for HPT's.
		Enter Farm. B. Randall logging (Moisture) at C4405 and C4407.
	03:00	Drove probe C4411 to 65.1 ft.
03:00	03:30	Lunch
03:30		Wait on HPT's.
		Moved plastic and felt to boring C4413. Moved HHU to C4413.
		Out of Farm due to HPT coverage.
	08:00	Moisture logging re-run at C4405 and C4407.

REPORT BY: S.H. Worley
TITLE : Duratek Field Supervisor
SIGNATURE: Daniel E Shoghi for

REVIEWED BY: KD Reynolds
TITLE: Project Manager
DATE: 12-13-06
SIGNATURE: Olin Anna for

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4413/C4415	*WELL NUMBER*: N/A	*REPORT NUMBER*: 7	*DATE:* July 12, 2005 (Tuesday)
CONTRACT NUMBER: 24196	*START CARD NO*: S27610	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: Driving Probes C4413 and C4415 and logging	*REFERENCE*: DTS-DOW-013, R 0	*LOCATION*: C Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*T OTAL SHIFT FOOTAGE*: 88.7 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	BOTTOM ASSEMB	TYPE
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	1.0 ft	OS

BORING DEPTH (include sampling depth): N/A

C4413: 0 to 30.6 ft.
C4415: 0 to 58.1 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
HPT – 1.0 hrs

WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Drive String Length	= N/A

SAMPLE SUMMARY
N/A

OPERATOR: K. Olson
D. Curry, S. Snook (Op.) L. Brown, L. Stevens (HPT); S. Worley (EnergySolutions);B. Randall (NW Geophysics)
H. Syndor (Project Manager)

TIME FROM	TO	*Grave yard shift starts*
11:30	12:30	Discuss activities. Rig service.
		HPT's arrive at 12:30. Pre-job, safety review.
		Enter Farm. B. Randall logging (Gamma and Moisture) at C4409. 2nd moisture at C4409.
	03:00	Drive C4413 to a depth of 30.6 ft. Moved plastic and felt to boring C4415. Moved HHU to C4415. Drive to a depth of 22 ft.
03:00	03:30	Lunch
03:30	04:00	Wait on HPT's.
04:00		Drive C4415 to a depth of 58.1 ft. Moved plastic and felt to boring C4417. Moved HHU to C4417.
	07:00	Out of Farm due to HPT coverage.
07:00	08:00	Stand-by, complete reports.
		Moisture logging complete at C4407 and C4409. Gamma log on C4409.

REPORT BY: S.H. Worley
TITLE : Duratek Field Supervisor
SIGNATURE: Daniel E Shoghi for

REVIEWED BY: KD Reynolds
TITLE: Project Manager
DATE: 12-13-06
SIGNATURE: Olin Cuse for

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4417,	*WELL NUMBER*: N/A	*REPORT NUMBER*: 8	*DATE:* July 13, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to drive Probe C4417	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0'	Total = 334.7'	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4417
START: 0'
END: 0'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: .5

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
8 Hours

WEATHER CONDITIONS (373-2716)
Wind 20 – 25 mph at 11:30
Wind 18 – 26 mph at 04:00

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall,
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley(Op)
L. Stevens, L. Brown (HPTs)
N/A (PIC) H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:00	Work package on site. Wind issues 20 to 25 mph. No Farm Entrance.
03:00	03:30	Lunch
03:30	08:00	Wind issues 18 to 26 mph. No Farm Entrance.
		Total Probe Driving = 334.7'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

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WELL I.D.: C4417, C4419	*WELL NUMBER*: N/A	*REPORT NUMBER*: 9	*DATE:* July 14, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Start Driving Probe C4417. Start Driving C4419.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 115.9' Total = 450.6'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4417: START: 0 ft
END: 58.1' BGS
C4419: START: 0 ft
END: 57.8 ft BGS

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: .5

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 hours
Rig Service/repairs: 0 hours
HPT: 1hours

WEATHER CONDITIONS (373-2716)
No Issues.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
N/A (PIC) H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:30	At Site, discuss activities: Push probes C4417 and C4419. Gamma Log on C4407, C4411, C4403, C4405.
12:30	01:00	HPTs arrive, pre-job, Enter Farm. B. Randall set up for Gamma Logging on C4407, C4411. Re-Log Gamma on C4403, C4405
01:00	03:00	Drive C4417 to 58.1' BGS. Move rig and plastic to C4419 drive ~22'.
03:00	03:30	Lunch
03:30	04:00	Wait on HPTs from lunch
04:00	06:30	Continue driving C4419 to 57.8' BGS.
06:30	07:00	Out of farm due to HPT coverage
07:00	08:00	Stand-by, fill out reports. Leave site
		Re-log Gamma C4403, C4405, Gamma log C4407, C4411
		Total Probe driving = 450.6'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Randall for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Keith Reynolds

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WELL I.D.: C4421	*WELL NUMBER*: N/A	*REPORT NUMBER*: 10	*DATE:* July 15, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Start Driving Probe C4421	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 58.4' Total = 509.0'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4421: START: 0 ft
END: 58.4' BGS

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: .5

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 hours
Rig Service/repairs: 4 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
No Issues.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
N/A (PIC)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:30	At Site, discuss activities: Push probes C4421. Gamma/Moisture Log on C4413, Moisture log on C4411, Gamma Log on C4415.
12:30	01:00	HPTs arrive, pre-job, Enter Farm. B. Randall set up for Gamma Logging on C4413, C4415. Moisture Logs on C4413, C4411
01:00	04:00	Drive C4421 to 58.4' BGS.
04:00	04:30	Move rig into RMA next to tent.
04:30	05:00	Lunch
05:00	07:30	Installed foot on mast, headlights and fueled rig.
07:30	08:00	Fill out reports. Leave site
		Gamma logs completed on C4413, C4415. Moisture logs completed C4411, C4413
		Total Probe Driving = 509'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

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WELL I.D.: N.A.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 11	*DATE:* July 18, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Install Break out wrench and control switch on the rig.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0, Total = 509.0'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
START: 0 ft
END:

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: .5

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0 hours
Rig Service/repairs: 8 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
No Issues.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
R. Woods (HPTs)
N/A (PIC)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:30	At Site, discuss activities: Attach break out wrench and cylinder. Add switch to control panel
12:30	01:00	Only one HPT available, unable to do logging. Sent Brent home at 1:00 am
01:00	07:30	Attached break out wrench and cylinder to the mast. Added a switch to operate break out wrench to control panel. Several problems and issues resolved during night.
7:30	8:00	Fill out reports. Leave site
		No Logging Performed.
		Total Probe Driving = 509'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kit Reynolds

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4403	*WELL NUMBER*: N/A	*REPORT NUMBER*:12	*DATE:* July 19, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Start back-pulling C4403	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4403: START: 60 ft
END: 56'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0 hours
Rig Service/repairs: 0 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
No Issues.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
N/A (PIC) H Sydnor

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:30	At Site, discuss activities: Attach break out wrench and cylinder. Add switch to control panel
12:30	01:30	Pre-job, safety review, wait for HPTs. HPTs arrive, Pre-job. Back pulling operations and grouting activities. Enter Farm.
01:30	3:30	Brought rig into the farm and set up over C4403. Attempted to back pull using the "saddle type" head. Would not move the pipe. Brought in the second made "Large Pin Hole" sub. Pulled 3 joints of pipe and stopped for lunch.
3:30	4:30	Lunch, wait for HPTs
4:30	5:30	Back in the Farm. Ran E-tape to tag the disposable Point to verify it had fallen out. Tape tagged at 48', tip appears to be stuck in the pipe. Added 2 rods to the string and drove back down. Ran the e-tape after each rod. Tip is not falling out.
5:30	7:30	Went to pipeyard to find a heavy rod that could be tied to a cable to use as "Drop Rod" to knock points out of pipe. Found a 2' piece of shaft with a coupler to tie to a roll of steel cable to use.
		Completed Gamma logging of C4419, C4421. And Moisture logging of C4415, C4417.
		Total Probe Driving = 509'
		Total Probe pulling = 12'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

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WELL I.D.: C4403	*WELL NUMBER*: N/A	*REPORT NUMBER*: 13	*DATE*: July 20, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Start back-pulling Probe C4403	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
START: 56'
END: 32'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 4 hours
Rig Service/repairs: 0 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
Wind @ 25 mph till 3:00 am

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, R. Woods (HPTs)
Dave Curry

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	3:00	At Site, Wind in excess of 20 mph, no tank farm operations allowed until wind dies down.
3:00	3:30	Pre-job: Running the "Drop Rod" to knock out the disposable tip. Mixing cement and back pulling rods from C4403. No time available for Logging activities so sent Brent home.
3:30	4:30	Enter Farm. Ran the "Drop Rod" in the hole, took 8 drops to remove the disposable tip (Fairly easy). Back pulled 6 rods from C4403.
4:30	7:30	Completed Reports.
		No Logging Completed
		Total Probe Driving = 509'
		Total Probe pulling = 36'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

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WELL I.D.: C4403, C4405.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 14	*DATE:* July 21, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Decommission Probe C4403, Start back pulling C4405	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4403: START: 32'
END: 0', 28 gal. Grout.
C4405: START: 31.5'
END: 8', 7 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: .5

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 hours
Rig Service/repairs: 0 hours
HPT: .5 hours
WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson, D. Curry, SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, S. Regev (HPTs)
Dave Curry

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:30	At Site, Pre-job: mixing cement and back pulling rods from C4403 and start C4405.
12:30	3:30	Enter Farm. Back pulled 7 rods from C4403 and added 28 gallons grout. Pulled last two rods.
3:30	4:30	Lunch, wait on HPTs.
4:30	6:30	Moved the rig to C4405 and back pulled 2 rods. Ran E-tape tagged 31.5', Tip had fallen out. Back pulled another 4 rods and then added 7 gallons of grout.
6:30	7:30	Completed Reports.
		Moisture logs were completed on C4419. And only ¾ completed on C4421.
		Total Probe Driving = 509'
		Total Probe pulling = 88'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

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WELL I.D.: C4405, C4406	*WELL NUMBER*: N/A	*REPORT NUMBER*: 15	*DATE:* July 22, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Complete decommissioning of C4405. Drive, sample and decommission C4406.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4405: START: 8'
END: 0', 15 gal. Grout.
C4406 : SAMPLED @ 12' – 14.5', 5 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 hours
Rig Service/repairs: 0 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudely (Op)
L. Stevens, S. Regen (HPTs)
J. Hogan, K. Hulse, H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:30	At Site, Pre-job: mixing cement and back pulling rods from C4405 and collect a sample from C4406.
12:30	1:00	Enter Farm. Back pulled last 2 rods from C4405 and added 8 gallons of Grout to C4405 (15 gallons total).
1:00	3:00	Moved the rig to C4406. Drove the sampler to 12' BGS. Removed the point key (easy) and drove the sampler 10'. Added another joint of pipe and drove the sampler another 20".
3:00	4:00	Lunch, wait on HPTs.
4:00	6:00	Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 6" of soil in the lower liner and 4" of soil collected from the sample shoe. Determined we need a 2' piece of pipe to use so that the sample can be driven in one shot. 5 gallons of Grout used in C4406.
6:00	7:30	Completed Reports.
		Moisture logs were completed on C4421.
		Total Probe Driving = 509'
		Total Probe pulling = 88'
		Samplers driven = 14.5'
		Samplers pulled = 14.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kurt Reynolds For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

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WELL I.D.: C4407	*WELL NUMBER*: N/A	*REPORT NUMBER*:16	*DATE:* July 25, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Complete decommissioning of Probe C4407.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: -56		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4407:
START: 58.94'
END: 0', 30 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: .5

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 3 hours
Rig Service/repairs: 0 hours
HPT: .5 hours
WEATHER CONDITIONS (373-2716)
Wind in excess of 20 mph till 2:00am

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, S. Regev (HPTs)
H Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	2:00	At Site, Wind in excess of 20 mph No in farm activities till 2:00am
2:00	2:30	Wind is dying down. Pre-job: mixing cement and back pulling rods from C4407.
2:30	5:30	Enter Farm. Back pulled pipe 1' Ran E-tape to 60.1' t-o-c, appears tip is still in pipe. (E-tape had ~2" of grey mud on the end of the tape, no contamination detected). Ran the "Drop Rod" and drove the disposable tip from the pipe. (Drop Rod had ~18" of grey mud on the bar, no contamination detected). Back pulled 7 rods and added 10 gallons grout. Back pulled 7 more joints and added 10 more gallons Grout. Pulled last rod from C4407 and added 10 more gallons grout (30 gal. Total).
5:30	7:30	Completed Reports.
		Specral Logging was completed on C4409 21' – 30'.
		Total Probe Driving = 509'
		Total Probe pulling = 144'
		Samplers driven = 14.5'
		Samplers pulled = 14.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kat Ryl for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: K Ryl

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4408	*WELL NUMBER*: N/A	*REPORT NUMBER*: 17	*DATE:* July 26, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Drive, sample and decommission C4408.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4408: Sample from 9.5' – 11', 8 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 3 hours
Rig Service/repairs: 0 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
Wind in excess of 20 mph till 2:00am

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley(Op)
L. Stevens, L. Brown (HPTs) B./ Mitchell, H. Sydnor
J. Hogan, D. Brewington

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	1:00	At Site, Wind issues.
2:00	2:30	HPTs arrive. Pre-job: Driving and collecting soil samples from C4408.
1:45	4:00	Enter Farm. Moved the rig to C4408. Drove the sampler to 9.5' BGS. Removed the point key (easy) and drove the sampler 25". Back pulled the sampler (2nd and 3rd rod had 500 cpm on them. Attempted to decon with wet towel, no effect. Sleeved in plastic and set aside.) to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Added 5 gallons of Grout to C4408.
4:00	5:00	Lunch, wait on HPTs.
5:00	5:30	Brent needed to do final calibrations on C4417 for Spectral logging. Added 3 gallons of Grout to C4408. Wrapped and bagged plastic and felt from under rig. Set up new plastic and felt on C4404. Set up rig on C4404 for sampling tomorrow.
5:30	7:30	Completed Reports.
		Spectral Logging was completed on C4417 from 14' – 20'.
		Total Probe Driving = 509'
		Total Probe pulling = 144'
		Samplers driven = 36.5'
		Samplers pulled = 36.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Rynd for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4404, C4410.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 18	*DATE:* July 27, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Sample and decommission C4404. Sample C4410.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4404: Sample from 20' – 21.5', 11 gal. Grout.
C4410: Sample from 23' – 24.5', 0 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0 hours
Rig Service/repairs: 0 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook C. Whiting(Op)
L. Stevens, L. Brown (HPTs)
F. Hall, K. Hulse, B. Mitchell, H. Sydnor

TIME FROM	*TIME* TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	1:00	At Site, waiting on HPTs
1:00	1:30	HPTs arrive. Pre-job: Driving and collecting soil samples from C4404.
1:30	3:30	Enter Farm. Drove the sampler in C4404 to 20' BGS. Removed the point key (little difficult) and drove the sampler 25'. Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Added 11 gallons of Grout to C4404.
3:30	5:00	Lunch, wait on HPTs.
5:00	7:00	Enter Farm. Drove the sampler in C4410 to 23' BGS. Removed the point key (little more difficult) and drove the sampler 25'. Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe.
7:00	7:30	Completed Reports.
		No Logging was attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 144'
		Samplers driven = 82.5'
		Samplers pulled = 82.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4410, C4409, C4411.	*WELL NUMBER*: N/A	*REPORT NUMBER* 19	*DATE:* July 28, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Decommission C4410. Sample C4410.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4410: 13 gal. Grout.
C4409: Start 31', End 0' 15 gal. Grout added.
C4411: Start 65.1', End 33.1', 5 gal. Grout added.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: .5

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0 hours
Rig Service/repairs: 0 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook M. Armstrong (Op)
L. Brown, (HPTs)
H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:15	At Site, waiting on HPTs
12:15	12:30	HPTs arrive. Pre-job: Grout C4410. Back pull C4409 and decommission. Back pull C4411.
12:30	3:15	Enter Farm. Added 13 gallons Grout to C4410. Moved the rig to C4409 and back pulled 1 rod. Ran E-tape tagged 28.1', Tip has not fallen out. Ran "Drop Bar", had work the bar to get the disposable tip out. Back pulled another 5 rods and then added 10 gallons of grout. Pull last two rods and added 5 gallons grout. Moved plastic and set up rig over C4411.
3:15	4:30	Lunch, wait on HPTs.
4:15	6:20	Enter Farm. Photograph break out wrench and foot clamp. Back pulled 1 rod from C4411. Ran E-tape tagged 61.1', Tip has not fallen out. Ran "Drop Bar", had work the bar to get the disposable tip out. Back pulled another 7 rods and then added 5 gallons of grout.
6:20	7:30	Completed Reports.
		No Logging was attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 208'
		Samplers driven = 82.5'
		Samplers pulled = 82.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4411.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 20	*DATE:* July 29, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Complete Decommissioning Probe C4410.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4411: Start 33.1', End 0', 25 gal. Grout added.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 3.5 hours
Rig Service/repairs: 0 hours
HPT: .5 hours

WEATHER CONDITIONS (373-2716)
Wind in excess of 20 mph till 3:00am

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, R. Woods (HPTs)
H. Sydnor

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	2:30	At Site, wind over 20 mph, No tank farm activities allowed.
2:30	3:00	Winds die down. HPTs arrive. Pre-job: Complete decommissioning C4411.
3:00	5:00	Enter Farm. Back pulled another 6 rods and then added 10 gallons Grout to C4411. Back pulled last 2 rods and then added 15 gallons Grout (30 gallons total in C4411). Added 10 gallons diesel to the rig and attempted to tighten hydraulic lines.
5:00	7:30	Completed Reports.
		Total Probe Driving = 509'
		Total Probe pulling = 240'
		Samplers driven = 82.5'
		Samplers pulled = 82.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4413	*WELL NUMBER*: N/A	*REPORT NUMBER*: 21	*DATE:* August 1, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to drive Probe C4413	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
START: N/A
END: N/A

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME:

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues 11:30 – 16:30
8 Hours

WEATHER CONDITIONS (373-2716)
Wind 20 – 25 mph at 11:30
Wind 18 – 25 mph at 04:00

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Brown S. Regey (HPTs)
H. Sydnor, B. Mitchell

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:00	Work package on site. Wind issues 20 to 25 mph. No Farm Entrance.
03:00	04:00	Lunch
04:00	07:30	Wind issues 18 to 25 mph. No Farm Entrance.
		Total Probe Driving = 509'
		Total Probe pulling = 240'
		Samplers driven = 82.5'
		Samplers pulled = 82.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

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WELL I.D.: C4413	*WELL NUMBER*: N/A	*REPORT NUMBER*: 22	*DATE:* August 2, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Decommission Probe C4413	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: -32		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4413
START: 30.65' BGS
END: 0', 15 gal, Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 4:30am
5.5 Hours

WEATHER CONDITIONS (373-2716)
Wind 17 – 23 mph at 11:30
Wind 13 – 20 mph at 04:00am

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:00	Work package on site. Wind issues 17 to 23 mph. No Farm Entrance.
03:00	04:00	Lunch. Wind 18 to 27 mph.
04:00	05:00	Wind died down to 13 to 20 and decreasing. Called HPTs, waiting.
5:00	6:00	Enter Farm. Move plastic and set up rig over C4413. Back pulled 1 rod. Ran E-tape tagged 30.5'. Tip had fallen out. Back pulled another 4 rods and then added 10 gallons of grout. Back pulled last 3 rods and added 5 gallons Grout.
6:00	7:30	Completed Reports.
		No logging attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 272'
		Samplers driven = 82.5'
		Samplers pulled = 82.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4414, C4412, C4413	*WELL NUMBER*: N/A	*REPORT NUMBER*: 23	*DATE:* August 3, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Sampling C4414, C4412, add grout to C4413.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
Sample C4414: 13.5' – 15', 9 gal. Grout.
Sample C4412: 23.5' – 25', 10 gal. Grout.
C4413 1 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues None
0 Hours

WEATHER CONDITIONS (373-2716)
Wind 8 mph at 11:30

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
J. Hogan, K. Young
B. Mitchell

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:45	At Site, waiting on HPTs
12:45	01:00	Pre job: Sample C4414 and C4412
01:00	02:30	Enter Farm. Drove the sampler in C4414 to 13.5' BGS. Removed the point key (fairly difficult) and drove the sampler 25'. Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Added 9 gallons of Grout to C4414. Added 1 gallon to C4413. Move plastic and set up rig over C4412.
2:30	3:45	Lunch, wait on HPTs
3:45	6:00	Enter Farm. Drove the sampler in C4412 to 23.5' BGS. Removed the point key (Very difficult) and drove the sampler 25'. Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Added 10 gallons of Grout to C4412.
6:00	7:30	Completed Reports.
		No logging attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 272'
		Samplers driven = 122.5'
		Samplers pulled = 122.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kent Smith For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: K Reynolds

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WELL I.D.: C4415	*WELL NUMBER*: N/A	*REPORT NUMBER*: 24	*DATE:* August 4, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Decommission C4415	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4415
START: 58.3' BGS
END: 0' 30 gal, Grout

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues None
0 Hours

WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
H. Sydnor, B. Mitchell

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:45	At Site, waiting on HPTs
12:45	1:00	HPTs arrive. Pre-job: Back pull C4415 and decommission.
01:00	3:30	Enter Farm. Moved plastic and set up the rig on C4415 and back pulled 1 rod. Ran E-tape tagged 58', Tip has fallen out. Back pulled another 4 rods and then added 10 gallons of grout. Pulled 5more rods and added 10 gallons grout. Pulled 5more rods and added 10 gallons grout.
3:30	4:30	Lunch, wait on HPTs.
4:30	5:00	Enter Farm. Move plastic and set up rig over C4417. PCM went off on Worley, lost his shorts (RADON?) Completed Reports.
5:00	7:30	NCOs have a 6:00 am meeting. Completed Reports.
		No logging attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 332'
		Samplers driven = 122.5'
		Samplers pulled = 122.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Rutta for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

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WELL I.D.: C4417, C4419	*WELL NUMBER*: N/A	*REPORT NUMBER*: 25	*DATE:* August 5, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Decommission Probe C4417 and start C4419	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4417: START: 58.1'
END: 0' 30 gal, Grout.
C4419: START: 58.1'
END: 54'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues None
0 Hours

WEATHER CONDITIONS (373-2716)
N/A

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:45	At Site, waiting on HPTs
12:45	1:00	HPTs arrive. Pre-job: Back pull C4417 and decommission.
01:00	3:30	Enter Farm. Rig is on C4417 and back pulled 1 rod. Ran E-tape tagged 58', Tip has fallen out. Back pulled another 4 rods and then added 10 gallons of grout. Pulled 5more rods and added 10 gallons grout. Pulled 5more rods and added 10 gallons grout. Moved plastic and set up rig over C4419. Tried to tighten hydraulic hoses, need end wrenches!
3:30	5:00	Lunch, wait on HPTs.
5:00	6:00	Enter Farm. Rig is on C4419 and back pulled 1 rod. Ran E-tape tagged 54', Tip has not fallen out. Ran "Drop Rod" for 30 minutes, very little movement. Stopped operations to determine next action to knock out disposable tip.
6:00	7:30	Completed Reports.
		No logging attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 396'
		Samplers driven = 122.5'
		Samplers pulled = 122.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4419, C4421	*WELL NUMBER*: N/A	*REPORT NUMBER*: 26	*DATE:* August 8, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Decommission Probe C4419 and C4421	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4419: START: 54'
END: 0', 26 gal. Grout.
C4421: START: 58.5'
END: 12', 4 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0

0 Hours

WEATHER CONDITIONS (373-2716)
1:00 am 11 – 15 mph to decline

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko,
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell, H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:55	At Site, waiting on HPTs
12:55	1:30	HPTs arrive. Pre-job: Complete back pull of C4419 and decommission. Back pull C4421.
01:30	3:30	Enter Farm. Rig is on C4419. Ran E-tape, tagged 54', Tip has not fallen out. Ran "Drop Rod" for 10 minutes, very little movement. Decided to pull string and grout from top. Pulled 14 joints and added 26 gallons of grout. (Found tip had broken off and lower tubing was filled with 6" of soil. Moved plastic and rig to C4421.
3:30	4:30	Lunch, wait on HPTs.
4:30	5:30	Enter Farm. Rig is set up on C4421. Pulled 1 Rod. Ran E-tape tagged 61.1'.Tip has not fallen out. Ran "Drop Bar", disposable tip came out easily. Back pulled another 4 rods and then added 4 gallons of grout. Back pulled another 7 rods.
5:30	7:30	Completed Reports.
		No logging attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 564'
		Samplers driven = 122.5'
		Samplers pulled = 122.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4421, C4422	*WELL NUMBER*: N/A	*REPORT NUMBER*: 27	*DATE:* August 9, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Decommission C4421 and sample C4422	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4421: START: 12'
END: 0' 23 gal. Grout
Sample C4422 @ 11.5' – 13', 7 gal. Grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME:

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues None
0 Hours

WEATHER CONDITIONS (373-2716)
1:00 am 17 – 22 mph to decline

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko,
WA LICENSE #: 1976
OTHER: S. Snook ,D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
K. Hulse, D. Brewington, H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:55	At Site, waiting on HPTs. HPs called, Mask Station is down.
12:55	1:30	HPTs arrive. Pre-job: Complete back pull of C4421 and decommission. Sample C4422. Wind at 17 – 22 mph supposed to be declining.
01:30	3:30	Enter Farm. Rig is on C4421. Added 10 gallons Grout. Pulled last 3 rods and added 10 gallons Grout. Moved plastic rig to C4422. Drove sampler in C4422 to 11.5' BGS. Removed the point key (very, very difficult) and drove the sampler 25". Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Added 7 gallons of Grout to C4422. Added 3 gallon to C4421.
3:30	4:30	Lunch, wait on HPTs.
4:30	5:30	Enter Farm. Moved plastic and rig to C4420 for sampling. Had issues with hydraulic line leaking from under rig. Tightened hose connection and replaced plastic and felt from under rig. Drove sampler in C4420 to 16.5'
5:30	7:30	Completed Reports.
		No logging attempted.
		Total Probe Driving = 509'
		Total Probe pulling = 576'
		Samplers driven = 135.5'
		Samplers pulled = 135.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4421, C4422, C4420.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 28	*DATE:* August 10, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Drive the sample for C4420. Grout C4422, C4421.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4420: drive sampler to 16.5' – 13'. 7 gal. Grout.
C4418: drive sampler to 10'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 4 Hours

WEATHER CONDITIONS (373-2716)
11:30 pm 27 – 38 mph to decline
1:30 am 13 – 17 mph

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
J. Hogsn, K. Young

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	2:00	At Site, watching wind speeds. Called samplers and HPTs to attempt an entrance
12:50	01:00	Operator enters farm to remove bad air sampler (Betty's report on bad cord). Wind at 17 – 22 mph supposed to be declining.
01:00	02:00	Driller, helper takes tips to Pipeyard to knock out pins and roll pins from holders and tips.
02:15	02:45	Drakulich and electrician arrive to repair air sampler cord. Repairs completed.
03:30	04:35	Enter Farm. Rig is set up on C4420 and sampler has been driven to 16.5' Removed the point key (easy) and drove the sampler 25". Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Moved plastic and rig to C4418 for sampling. Drove sampler to ~10' when hydraulic hose on mast broke.
04:35	05:00	Hydraulic hose on mast breaks and sprays ~1 gallon hydraulic oil onto felt plastic. Slight mist settled on gravel in the farm. Immediately contained and covered the spill with pigs and absorbent pads. Report to Shift Office.
05:00	06:20	Discuss recovery and repairs for hydraulic hose.
06:20		Called Jim Adrian to request HPT to get into farm and remove broken hose.
09:00	09:45	HPT arrives. Enter farm, remove hose, exit farm.
09:45	10:00	Return racks and masks to station, head to town.
10:00	12:00	Kelly receives purchase requisition and takes hose to hydraulic store to have replacement made.
		Total Probe Driving = 509'
		Total Probe pulling = 576'
		Samplers driven = 152.5'
		Samplers pulled = 152.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Rupka for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kate Rupka

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4418, C4416.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 29	*DATE:* August 11, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Replace hydraulic hose. Sample and Decommission C4418.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4418: drive sampler to 11.5' – 13'. 7 gal. Grout.
C4416: drive sampler to 14.5'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 Hours

WEATHER CONDITIONS (373-2716)
11:30 pm 27 – 38 mph to decline
1:30 am 13 – 17 mph

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
J. Hogan, D. Brewington, H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	2:00	At Site, watching wind speeds. Called samplers and HPTs to attempt an entrance
02:00	02:15	Pre-job: Complete sampling of C4418 and decommission.
02:15	05:00	Enter Farm. Attached new hydraulic hose. Test controls, watch for leaks. Clean up spill pads and pigs. Drive the sampler 1.5' to 11.5 BGS. Removed the point key (easy) and drove the sampler 25". Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Added 7 gallons Grout to C4418. Moved rig and disposed of plastic and felt from under rig. Replaced with new plastic and felt. Set up rig on C4416 for sampling. Drove sampler to 14.5'.
05:00	07:30	Complete reports
		Total Probe Driving = 509'
		Total Probe pulling = 576'
		Samplers driven = 165.5'
		Samplers pulled = 165.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kevin Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4416.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 30	*DATE:* August 12, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Sample and Decommission C4416. Drive Probe C4433.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level		*TOTAL SHIFT FOOTAGE*:	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4416: drive sampler to 14.5' – 16', 10 gal. Grout. C4433: start 0' END 32.4'.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 Hours

WEATHER CONDITIONS (373-2716)
11:30 pm 16 – 22 mph to decline

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko,
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
K. Young, K. Hulse, H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	01:00	At Site, watching wind speeds. Called HPTs to attempt an entrance
01:00	01:20	HPTs arrive. Pre-job: Complete sampling of C4416 and decommission. Tr to Drive C4433.
01:20	05:00	Enter Farm. Attempted to removed the point key (took 45 minutes to get threaded in and pull key). Drove the sampler 25". Back pulled the sampler to surface and broke the samplers joints. Sampler carried to sample table and disassembled. Collected 9" of soil in the lower liner and 9" of soil in upper liner, 6" of soil collected from the sample shoe. Added 10 gallons Grout to C4416. Moved plastic and rig to C4433. Drove probe C4433 to 32.4' BGS. Moved plastic and rig to C4425.
05:00	07:30	Complete reports
		Total Probe Driving = 541'
		Total Probe pulling = 576'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kurt Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: KD Reynolds

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4425, C4429	*WELL NUMBER*: N/A	*REPORT NUMBER*: 31	*DATE:* August 15, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Drive Probe C4425, C4429.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4425: START 0', END 31'. C4429: START 0' END 58.3'.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0 Hours

WEATHER CONDITIONS (373-2716)

No Issues.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson

SH Worley, M. Repko,

WA LICENSE #: 1976

OTHER: S. Snook D. Dudley (Op)

L. Stevens, L. Brown (HPTs)

B. Mitchell, H. Sydnor

TIME FROM	*TIME* TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:30	At Site, waiting on HPTs
12:30	01:00	HPTs arrive. Pre-job: Drive Probe C4425 and C4429.
01:00	03:30	Enter Farm. Set up rig on C4425. Drove probe to 31' BGS. Rods got tight (Slowed penetration rate) at 12' to 16' and from 20' to 24'. Moved plastic and rig to C4429. Drove probe C4429 to ~16
03:30	04:30	Lunch, wait for HPTs.
04:30	05:00	Review plans, Dress.
05:00	06:40	Enter Farm. Continue driving probe C4429 to 58.3' BGS. Rods got tight (Slowed penetration rate) at 12' to 16' and from 20' to 24' and 55' to 58'.
06:40	07:30	Complete reports
		Note: Used new larger octagon tip holder. They seem to drive harder. Rotation is more difficult.
		Total Probe Driving = 633'
		Total Probe pulling = 576'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: [signature]

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4439, C4437	*WELL NUMBER*: N/A	*REPORT NUMBER*: 32	*DATE:* August 16, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Drive Probe C4425, C4429.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4439: START 0', END 32'.
C4437: START 0' END 58.9'.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 Hours

WEATHER CONDITIONS (373-2716)
11:30: Wind 5-15 mph.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell, H. Sydnor

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:30	At Site, waiting on HPTs
12:30	01:00	HPTs arrive. Pre-job: Drive Probe C4439 and C4437.
01:00	03:30	Enter Farm. Move plastic and rig to C4439. Set up rig on C4439. Drove probe to 32' BGS. Moved plastic and rig to C4437. Drove probe C4437 to ~16'
03:30	04:30	Lunch, wait for HPTs.
04:30	06:15	Enter Farm. Continue driving probe C4437 to 58.9' BGS. Move plastic and rig to C4435.
06:15	07:30	Complete reports
		Moisture logging completed on C4429, C4433.
		Total Probe Driving = 725'
		Total Probe pulling = 576'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: KD Reynolds

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4435, C4431	*WELL NUMBER*: N/A	*REPORT NUMBER*: 33	*DATE:* August 17, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Drive Probe C4435, C4431.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

TOTAL SHIFT FOOTAGE:

BORING DEPTH (include sampling depth):
C4435: START 0', END 32.4'
C4431: START 0' END 30'.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0 Hours

WEATHER CONDITIONS (373-2716)
11:30: Wind 18 - 29 mph.
01:00: Wind 21 – 32 mph
01:30: Wind 8 – 13 mph

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko, B. Randall, R. Price
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:30	At Site, waiting on HPTs Winds in excess of 20 mph.
12:30	01:45	HPTs arrive. Pre-job: Drive Probe C4435 and C4431. Try logging.
01:45	03:00	Enter Farm. Rig is set up on C4435. Drove probe to 32.4' BGS. Moved plastic and rig to C4431.
03:00	03:20	Found leaking hydraulic line underneath the back hoe. Attempted to tighten connection.
03:20	03:30	Discussed working around moisture and oils in RAD zones. If whites get saturated Skin can become contaminated. Must use precaution not get oil on whites.
03:30	04:30	Lunch, wait for HPTs.
04:30	05:00	Reviewed leaking hydraulic line issues. Enter Farm.
05:00	06:25	Backed rig off of plastic and felt. Disposed of plastic and felt. Layed out new plastic and felt at C4431. Set up rig on C4431. Drove probe to ~30'.
06:25	07:30	Complete reports
		Moisture logging completed on C4439, C4437 (90% complete). Gamma logging completed on C4429.
		Total Probe Driving = 787'
		Total Probe pulling = 576'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Ken Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4431, C4427, C4447.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 34	*DATE:* August 18, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Drive Probe C4431, C4427, C4447.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4431: START 30', END 58.9'. C4427: START 0' END 32.4'. C4447: START 0', END 31.6'.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues: 0 Hours

WEATHER CONDITIONS (373-2716)
No Issues

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell, H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:15	At Site, waiting on HPTs, spoke to them on phone. Can dress and enter.
12:15	12:50	HPTs arrive. Pre-job: Drive Probe C4431 and C4427 and C4447. Try logging.
12:50	03:20	Enter Farm. Rig is set up on C4431. Drove probe to 58.9' BGS. Moved plastic and rig to C4427. Drove Probe C4427 to 32.4' BGS. Moved plastic and rig to C4447.
03:30	05:00	Lunch waiting on HPTs.
05:00	06:00	Set up rig on C4447. Drove probe to 31.6' BGS.
06:00	07:30	Complete reports.
		Gamma logging completed on C4433, C4435, C4439, C4437, C4425.
		Total Probe Driving = 881'
		Total Probe pulling = 576'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4429.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 35	*DATE:* August 19, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Service rig in RBA, check hoses. Back pull C4429.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4429: START 58.3', END 50.3'.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues: 0 Hours

WEATHER CONDITIONS (373-2716)
No Issues

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko, B. Randall,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell, H. Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:30	At Site, waiting on HPTs.
12:30	01:30	HPTs arrive. Pre-job: Surveying rig into RBA to service and inspect hoses. Try logging.
01:30	03:30	Enter Farm. Rig is surveyed out of farm and into RBA. Add fuel, grease hammer and backhoe, changed foot clamp dies, tightened hoses. Talked about working through lunch and getting out early.
03:30	05:00	Moved plastic and rig to C4429. Set rig up on C4429. Back pulled 2 rods. Ran E-tape, tagged 58', Tip has fallen out. New octagon tips pull very hard and rotate very hard.
05:00	07:30	Complete reports.
		Moisture logging completed on C4425, C4435, C4437(10' of 60').
		Total Probe Driving = 881'
		Total Probe pulling = 584'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kent Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4429	*WELL NUMBER*: N/A	*REPORT NUMBER*: 36	*DATE:* August 22, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to drive Probe C4429	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0' Total = 334.7'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4429
START: 58.3'
END: 58.3'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
8 Hours

WEATHER CONDITIONS (373-2716)
Wind 21 – 28 mph at 11:30
Wind 20 – 28 mph at 03:00

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook (Op) (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:00	Work package on site. Wind issues 21 to 28 mph. No Farm Entrance.
03:00	03:30	Lunch
03:30	08:00	Wind issues 20 to 28 mph. No Farm Entrance.
		Total Probe Driving = 881'
		Total Probe pulling = 584'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4429	*WELL NUMBER*: N/A	*REPORT NUMBER*: 37	*DATE:* August 23, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to drive Probe C4429	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0'	Total = 334.7'	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4429
START: 58.3'
END: 58.3'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
8 Hours

WEATHER CONDITIONS (373-2716)
Wind 18 – 32 mph at 11:30
Wind 19 – 28 mph at 03:00

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook (Op)
L. Brown (HPTs)
Samplers:

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:00	Work package on site. Wind issues 18 to 32 mph. No Farm Entrance.
03:00	03:30	Lunch
03:30	08:00	Wind issues 19 to 28 mph. No Farm Entrance.
		Total Probe Driving = 881'
		Total Probe pulling = 584'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4429, C4425.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 38	*DATE:* August 24, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4429. Start back pulling C4425.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0'	Total = 334.7'	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4429:START: 58.3'
END: 0'. 33 gal. Grout.
C4425: START 31"
END 11'. 5 gal. Grout

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
8 Hours

WEATHER CONDITIONS (373-2716)
Wind 14 – 20 mph at 11:30

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:00	Work package on site. Wind issues 18 to 32 mph. No Farm Entrance.
12:10	12:30	HPTs on-site. Pre-job: back pull C4429, logging. Safety: beware of exploding duallys!
12:30	01:00	Dress for farm.
01:00	03:15	Start back pulling C4429. pulled 3rd rod, ran E-tape, appears tip has fallen out. Pulled 5 rods, add 10 gallons Grout. Pulled 5 more rods, pour 10 gallons Grout. Pull last 2 rods, pour 10 gallons Grout. Brent is having problems with logging equipment.
03:15	04:30	Lunch, wait for HPTs
04:30	06:10	Moved the rig to C4425 and back pulled 2 rods. Ran E-tape tip had fallen out. Back pulled another 3 rods and then added 5 gallons of grout. Added 3 gallons to C4429.
06:10	07:30	Complete Reports
		Moisture logging completed on C4447, C4427. Gamma tool winch not operating.
		Total Probe Driving = 881'
		Total Probe pulling = 656'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kent Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: K Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4425, C4433, C4439.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 39	*DATE:* August 25, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4425, C4433, C4439.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0' Total = 334.7'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4425: START: 11'
END: 0'. 14 gal. Grout.
C4433: START 32.4"
END 0'. 16 gal. Grout
C4439: 32' – 28'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
0 Hours

WEATHER CONDITIONS (373-2716)
No issues

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
SH Worley, M. Repko, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)
B. Mitchell, H. Sydnor

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
11:30	12:00	Work package on site.
12:10	12:30	HPTs on-site. Pre-job: back pull C4429, logging. Safety: beware of exploding duallys!
12:36	01:00	Dress for farm.
01:00	03:10	Continue back pulling C4425. Pulled last 3 rods, add 14 gallons Grout. Moved the rig to C4433 and back pulled 2 rods. Ran E-tape tip had fallen out. Back pulled another 3 rods and then added 8 gallons of grout. Back pulled another 3 rods and then added 10 gallons of grout.
03:10	04:20	Lunch, wait for HPTs
04:20	06:00	Back pulled 1 rods and added 8 gallons grout. Moved the rig to C4439 and back pulled 1 rod. Ran E-tape tip had not fallen out. Ran the "Drop Bar" and knocked tip out.
06:00	07:30	Complete Reports
		Moisture logging completed on C4447, C4427, C4431. Gamma tool winch not operating.
		Total Probe Driving = 881'
		Total Probe pulling = 704'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4439, C4437.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 40	*DATE:* August 26, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4439, C4437.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0' Total = 334.7'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4439: START: 28'
END: 0'. 22 gal. Grout.
C4437: START 58.9"
END 14.9. 16 gal. Grout

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
0 Hours

WEATHER CONDITIONS (373-2716)
No issues

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson, M. Repko
SH Worley, B. Randall
WA LICENSE #: 1976
OTHER: S. Snook D. Dudley (Op)
L. Stevens, L. Brown (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
11:30	12:20	Work package on site.
12:20	01:00	HPTs on-site. Pre-job: back pull C4439, logging. Safety: beware of exploding duallys!
12:36	01:00	Dress for farm.
01:00	03:00	Continue back pulling C4439. Pulled 3 rods, add 6 gallons Grout. Pulled 4 rods, add 10 gallons Grout. Moved the rig to C4437 and back pulled 2 rods. Ran E-tape tip had not fallen out. Ran drop rod and knocked tip out.
03:00	04:30	Lunch, wait for HPTs
04:30	06:00	Back pulled 3 rods and added 8 gallons grout. Back pulled 5 rods and added 8 gallons grout. Back pulled 2 more rods. 11th rod had 600 cpm fixed. Sleeved the rod and set aside.
06:00	07:30	Complete Reports
		Attempted Gamma logging completed on C4447, C4431. Gamma tool not operating properly.
		Total Probe Driving = 881'
		Total Probe pulling = 784'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: N/A	*WELL NUMBER*: N/A	*REPORT NUMBER*: 41	*DATE:* August 29, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4437.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4437: START 14.9'
END 14.9'. 0 gal. Grout

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
0 Hours

WEATHER CONDITIONS (373-2716)
Wind: 15 – 19 mph @ 08:00

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley, B. Randall, R. Price
WA LICENSE #: 1976
OTHER: S. Snook (Op)
D. Judy, A. Grahm? (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	FIRST DAY OF DAY SHIFT! Went to get Mask and Racks. Station would not give out our masks/racks because we had 2 sets still checked out from Friday. On-Site. Work package here. Randy Price and Brent Randall are working on the Gamma Unit.
08:00	08:45	HPTs on-site. Darren Judy and Adam Grahm? Explained what happened on Friday night with Radon issues on racks. D. Judy goes to mask station to explain. Everything straightened out. K. Olson and M. Repko return to mask station to get mask and rack. While at mask station SMURF has a fire drill.
09:20	09:54	K. Olson and M Repko return with mask/racks. Begin discussing Aces find out we must ace individually so head back to SMURF.
09:54	10:27	Go Ace in.
10:27	10:45	10:30 wind 15 – 24, wait for HPTs
10:45	11:15	HPTs arrive. Pre-job/safety: Discuss operating logging equipment in windy conditions. Wind is above 20 mph so no rod pulling activities. Discuss Bottle changes, proper lifting of logging equipment.
11:15	01:10	Gamma Logged C4447, C4427, C4431.
1:10	2:00	Survey mask/racks, logging equipment. Review gamma logs
2:00	2:30	Operators take mask/racks, bottles back to station
2:30	4:30	Return logging equipment to 345 Hills.
		Total Probe Driving = 881'
		Total Probe pulling = 784'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kurt Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4437, C4435.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 42	*DATE:* August 30, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4437.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4437: START 14.9'
END 0'. 8 gal. Grout
C4435: START 32.4'
END 16.4'. 0 gal. Grout

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
0 Hours

WEATHER CONDITIONS (373-2716)
Wind: 10 – 14 mph @ 09:00
Wind: 5 – 10 mph, Wet Bulb 72, Temp 77 @ 1:00 pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
D. Judy, A. Grahm? (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:20	On-site. Wash out Skoglie's fridgerator and microwave, mopped out floor of the drillers trailer.
07:20	09:00	NCOs arrive with bottles and package. HPTs call and say they will be 1.5 hours late.
09:00	09:45	HPT Andy Grahm arrives on-site, needs to get instruments. Called D. Judy had to take kids to school running late. Andy leaves to get instruments.
09:45	11:00	HPT Andy calls " No vehicles available".
11:00	11:30	HPTs call they need a ride to work site. S.Snook leave to pick them up.
11:30	11:45	HPTs arrive! Pre-job/safety: Discuss heat and sweating issues. RAD issues with pipe being pulled. Taking wet rags into farm to wipe down pipe if needed. Surveying pipe out of the farm. Bottle changes and breaks..
11:45	12:15	While dressing for farm M. Repko's rack blew a gasket while testing system. Took him to the mask station, filled out reports and got a new rack. Return to change trailer.
12:23	1:44	Enter farm. Rig is on C4437. Add 8 gallons grout. Back pull 3 more rods and add 8 gallons grout. Move plastic and rig to C4435. Back pulled 4 rods when Jim Hull comes to site and notifies us to evacuate the farm due to High Rad issues at tank work on the other side of the farm. Crew leaves farm.
1:44	4:30	Operators take mask/racks, bottles back to station. Stand by, complete reports.
		Total Probe Driving = 881'
		Total Probe pulling = 812'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4435,	*WELL NUMBER*: N/A	*REPORT NUMBER*: 43	*DATE:* August 31, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4435, C4447.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4435: START 16.4' END 0'. 18 gal. Grout
C4447: START 31.6' END 0'. 14 gal. Grout
C4427: START 32.4' END 0'. 8 gal. Grout

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues 11:30 – 08:00
0 Hours

WEATHER CONDITIONS (373-2716)
Wind: 10 – 14 mph @ 09:00
Wind: 5 – 10 mph, Wet Bulb 72, Temp 77 @ 1:00 pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, A. Grahm? (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	07:30	On-site. NCOs bring bottles and package. Wash out Skoglie's fridgerator and microwave, mopped out floor of the drillers trailer.
07:30	08:00	HPTs arrive. Pre-job: add grout to C4437, Back pull and grout C4435. Survey rods from the farm.
08:00	08:30	Dress.
08:30	11:16	Rig is set up on C4435, back pulled 2 rods added 8 gallons grout. Back pulled last 2 rods added 6 gallons grout. 2 gallons added to C4437, then added 8 gallons to C4437. Added 4 more gallons to C4435. Move plastic and rig to C4447. Back pulled 1 rod from C4447. Ran E-tape tagged 27', Tip has not fallen out. Ran "Drop Bar", tip came out easily. Back pulled another 3 rods and then added 6 gallons of grout. Back pulled last 4 rods and added 8 gallons grout. Move plastic and rig to C4427. Back pulled 1 rod from C4427. Ran E-tape tagged 28', Tip has not fallen out. Ran "Drop Bar", tip came out easily. Back pulled another 4 rods and then added 8 gallons of grout. Back pulled last 4 rods.
11:16	12:40	Lunch.
12:40	12:40	Harold Sydnor called "C-farm is shut down due to High Rad issues at tank C-202". No entry allowed.
12:40	04:30	Stand by. Take bottles and racks back to station. Complete reports.
		Total Probe Driving = 881'
		Total Probe pulling = 876'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4431,	*WELL NUMBER*: N/A	*REPORT NUMBER*: 44	*DATE:* September 1, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4431.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4431: START 58.9'
END 58.9'. 0 gal. Grout

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues none 0 Hours
No HPT: 9 hours
WEATHER CONDITIONS (373-2716)

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
A. Grahm? (HPTs)
B. Mitchell

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	On-site. NCOs bring bottles and package.
07:30	07:55	Wait on HPTs
07:55	08:15	HPT A. Grahm arrives. Pre-job: back pull and grout C4431. HPT leaves to get mask/rack and instruments.
08:15	11:30	HPT calls "Mask station is down with computer issues. Stand by.
11:30	12:00	Lunch.
12:00	4:30	Transported surveyed drill rods to pipeyard wash pad. Start cleaning.
12:40	04:30	Stand by. Take bottles and racks back to station. Complete reports.
		Total Probe Driving = 881'
		Total Probe pulling = 876'
		Samplers driven = 181.5'
		Samplers pulled = 181.5'

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kate Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4431,	*WELL NUMBER*: N/A	*REPORT NUMBER*: 45	*DATE:* September 2 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to back pull and decommission Probe C4431.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4431: START 58.9'
END 0'. 28 gal. Grout
C4427: 10 gal. Grout.

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues none 0 Hours
No HPT: .5 hours

WEATHER CONDITIONS (373-2716)
Temperature in mid 80's @ 12:00
Down 3 hours due to heat.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, A. Grahm? (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	07:30	On-site. Received 2 sampler assemblies from 5-bay
07:30	08:00	Wait on HPTs
08:00	08:30	HPTs arrive and leave to get instruments and mask/racks..
08:30	08:45	NCOs, HPTs, bottles and package arrive on-site.
08:45	09:07	Pre job: Back pull and grout C4431, drive sampler in C4432. Dress for farm.
09:07	11:00	Move plastic and rig to C4431. Back pulled 2 rods. Ran E-tape tagged 58', Tip had fallen out. Back pulled another 4 rods and then added 10 gallons of grout. Added 10 gallons grout to C4427. Crane cam through RBA. Back pulled 4more rods from C4431, added 10 gallons grout. Back pulled 5more rods from C4431, added 8 gallons grout.
11:00	12:00	Cool down break in change trailer. Getting warm. Discuss sample depth for C4432 of 20.5' BGS. Back in farm Move plastic and rig to C4432. Drive sampler to 20.5 BGS. Exit farm.
12:00	4:30	Stand down due to heat and HPT issues. Write reports, discuss finding or making a "t" handle for removing sample point key. Clean pipe at wash pad.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Kurt Rylander for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: KD Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4432, C4440.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 46	*DATE:* September 6 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to sample Probe C4432, and C4440.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4432: Sample @ 20.5-22'. 10 gal. Grout
C4440: Sample @ 6.5 – 8'. 6 gallon grout.

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues none 0 Hours
No HPT: .5 hours

WEATHER CONDITIONS (373-2716)
Temperature in mid 80's @ 12:00
Down 3 hours due to heat.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, A. Grahm? (HPTs)
K. Hulse, F. Hall

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:00	On-site. Wind expected to be 5-10 mph and temps to 85 today. Wait on HPTs
08:00	09:00	Go ACE. Check on Dave Skoglies status – OK to ACE. Talk to K. Hulse about ACE, RWP IS-606.
09:00	09:20	Dress in change trailer, samplers arrive. Pre-job: Pull sampler from C4432, attempt sample from C4440.
09:20	11:30	Rig is set up on C4432. Remove sample point key. Drive sampler 25". Back pull sampler, move to sample table. Sample: 75% recovery. Add 8 gallons grout in C4432. Move plastic and rig to C4440. Drive sampler to 6.5'. Remove key, drive sampler 25". Back pull sampler and move to sample table. Sample: 50% recovery. Rock lodged in shoe prevented full recovery. Added 6 gallons grout to C4440.
11:30	12:00	Lunch. No farm activity due to heat and HPTs.
12:00	4:30	K. Olson and M. Repko take disposable tips to Bluestar yard to weld the tips better. Fill out reports.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Rankin for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4445, C4438, C4448.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 47	*DATE:* September 7, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to sample Probe C4445, and C4438, C4448.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4445: Sample @ 6.5- 8'. 4 gal. Grout
C4440: Sample @ 13.5 – 15'. 8 gallon grout.
C4448: Sample @ 17 – 18.5'. 12 gallon grout.

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues none 0 Hours
No HPT: .5 hours

WEATHER CONDITIONS (373-2716)
Temperature in mid 80's @ 12:00
Down 3 hours due to heat.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, A. Grahm? (HPTs)
K. Hulse, F. Hall

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	07:30	On-site. Cut spacers for sampler assemblies. Wait on HPTs
07:30	08:55	Wait on samplers and HPTs
08:55	12:20	Dress in change trailer, samplers arrive. Pre-job: Resample C4440 as C4445 at 6.5 – 8'. Sample C4438 at 13.5 to 16'. Move plastic and rig to C4445. Drive sampler to 6.5' remove sample key. Drive sampler 25". Back pull sampler and move to sample table. Sample C4445 100% recovery. Add 4 gallons grout to C4445. Move plastic and rig to C4438. (Worley leaves to unload pallet of cement t pipeyard.) Drive sampler to 13.5' Remove sample key. Drive sampler 25". Back pull sampler and move to sample table. Sample: 3" in top liner, 9" in bottom liner 6" in shoe. Add 8 gallons grout in C4438. Move plastic and rig to C4448. Drive sampler to 17'. Remove sample key. Drive sampler 25". Back pull sampler and move to sample table. Sample C4448: 100%. Add 12 gallons grout.
12:20	12:40	Lunch.
12:40	4:30	Down due to heat and HPTs. Clean pipe.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: [illegible] For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4436, C4434, C4428.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 48	*DATE:* September 8, 2005 Thursday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to sample Probe C4445, and C4438, C4448.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4436: Sample @ 16-17.5'. 8 gal. Grout
C4434: Sample @ 13.5 – 15'. 5 gal. grout.
C4428: Sampler driven to 18'. 0 gallon grout.

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues none 0 Hours
No HPT: .5 hours

WEATHER CONDITIONS (373-2716)
Temperature in mid 80's @ 12:00
Down 3 hours due to heat.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, A. Grahm? (HPTs)
K. Young, D. Brewington

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	On-site. Wait on HPTs and NCOs
08:00	8:20	D. Dudley and Worley go get bottles, meet K. Young about ACEs and mask/racks.
08:20	08:45	Back on-site. HPT calls, D. Judy, "no 2nd hpt or vehicle." D. Dudley goes to pick up HPTs (Sam?). Samplers, HPTs and NCOs on-site. Pre-job: attempt to sample C4436 and C4434 and C4428.
08:45	09:20	Dress.
09:20	12:30	Add 10 gallons of diesel to Back Hoe. Move plastic and rig to C4436. Drive sampler to 16' remove sample key. Drive sampler 25". Back pull sampler and move to sample table. Sample C4436 100% recovery. Add 8 gallons grout to C4436. Move plastic and rig to C4434. Drive sampler to 13.5'. Remove sample key. Drive sampler 25". Back pull sampler and move to sample table. Sample C4434: 100%. Add 5 gallons grout in C4434. Move plastic and rig to C4428. Drive sampler to 18'.
12:30	1:00	Lunch
1:00	4:30	Down due to heat and HPTs. Clean pipe.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kenth Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4428.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 49	*DATE:* September 9, 2005 Friday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to sample Probe C4428.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4428: Sample 18'-19.5'. 8 gal. grout.

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues none 5 Hours

No HPT: .5 hours

WEATHER CONDITIONS (373-2716)

Wind in excess of 20 mph at 10:30

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op)

Jeff, A. Grahm? (HPTs)

K. Hulse, F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:50	On-site. Wait on HPTs and NCOs
08:50	9:20	Pre-job: Expecting strong winds today. Try to sample C4428 and C4426 before blown out.
09:20	10:30	Rig set up on C4428. Remove sample key and drive sampler 25". Back pull sampler and move to sample table. Sample C4428 100%. Move plastic and rig to C4426. Wind gusting to above 20 mph.
10:30	12:00	Dump garbages, clean up site.
12:00	12:30	Lunch
12:30	4:30	Complete reports. Take rental truck to town for oil change.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4426, C4430.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 50	*DATE:* September 12, 2005 Monday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to sample Probe C4426, C4430.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C4426: Sample 5.5'- 7'. 3 gal. grout.
C4430: drive Sampler to 18.5'

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues none 0 Hours
No HPT: .5 hours
WEATHER CONDITIONS (373-2716)
Heat in afternoon.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, A. Grahm? (HPTs)
K. Hulse, F. Hall

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:50	On-site. Wait on HPTs and NCOs
08:50	9:40	Pre-job: attempt to sampleC4426 and C4430.
09:20	12:00	Rig set up on C4426. Drive sampler to 5.5' Found hose on head getting twisted. Stopped to straighten out twisted hose. Had 2 construction crew trucks travel through RBA. Issue with foot clamp switch not working both ways. Probable bad switch. Removed back cover on drill unit and operated foot clamp with manual valve. Remove sample key and drive sampler 25". Back pull sampler and move to sample table. Sample C4426 100% in shoe and bottom liner, 20% in top liner. Add 3 gallons grout to C4426.
12:00	1:12	Lunch wait on HPTs
1:12	2:00	Back in farm. Move plastic and rig to C4430. Drive sampler to 18.5'. Removed control box and surveyed from farm.
2:00	4:30	Replaced electric switch on control box for foot clamp. Complete reports.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C4430.	*WELL NUMBER*: N/A	*REPORT NUMBER*: 51	*DATE:* September 13, 2005 Tuesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: attempt to sample Probe C4426, C4430.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C4430: Sample to 18.5' – 20'. 10 gal. Grout.

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues none 0 Hours

No HPT: .5 hours

WEATHER CONDITIONS (373-2716)

Heat in afternoon.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op)

Jeff, A. Grahm? (HPTs)

K. Hulse, F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:15	On-site. Wait on HPTs and NCOs
08:15	8:45	Pre-job: attempt to sample C4430.
08:45	10:30	Rig set up on C4430. Remove sample key and drive sampler 25". Foot clamp switch still not working wired wrong? Or broken? Used manual controls to back pull sampler. Move to sample table. Sample C4430 100%. Add 10 gallons grout to C4430.
10:30	11:30	Discuss getting rig released from the farm with HPTs. They have issues with surveying the whole rig.
11:30	12:00	Lunch.
12:00	3:30	Go to the TY trailer site and map out the site set up for trailers and equipment.
3:30	4:30	Complete reports.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: N/A	*WELL NUMBER*: N/A	*REPORT NUMBER*: 52	*DATE:* September 14, 2005 Wednesday
CONTRACT NUMBER: 24196	*START CARD NO*: S 27610	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Remove rig from farm to RMA. Start surveying rig for release. Start surveying equipment from farm. GPS sample holes.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level		*TOTAL SHIFT FOOTAGE*:	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):

START TIME: 7:00
END TIME: 04:30
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues none 0 Hours

No HPT: .5 hours

WEATHER CONDITIONS (373-2716)

Heat in afternoon.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op)

L. Steven, L. Brown (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:20	On-site. Wait on HPTs and NCOs. 7:40 Teamster arrive to move trailers. No Electricians to disconnect.
08:20	9:30	Pre-job: Remove rig and support equipment. Surveys. Worley leaves with Sydnor to deliver AHA to E. Davis to release TY farm package.
09:30	10:30	Move rig out, load pallets, line up equipment at RBA gate.
10:30	11:30	M. Dorsey on site. Set up and test GPS equipment. Dress.
11:30	11:45	Enter Farm and collect GPS data for sample holes.
11:45	1:00	Lunch. Wait on HPTs
1:00	3:00	HPTs survey GPS equipment from change trailer. Start surveying rig. Collect information for oil and filter changes for procurements.
3:00	4:30	Complete reports, start purchase requisitions.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: K Reynolds For

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-2-06
SIGNATURE: Kent Reynolds

APPENDIX D

EXPLANATION OF DOWN TIME FOR VERTICAL BOREHOLES

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EXPLANATION OF DOWN TIME FOR VERTICAL BOREHOLES

Excessive Wind = 77.5 hours. CH2M HILL procedures call for tank farm work stoppage when winds are in excess of 20 miles per hour.

Excessive Heat = 15.5 hours. CH2M HILL procedures specify a work/rest regiment dependant on the wet bulb globe thermometer temperature.

No Operator Support = 1.5 hours. Nuclear chemical operators attended meeting.

Training = 3 hours. Energy Solutions HHU operators were in scheduled training.

High Radiation in Farm = 6.5 hours. Radiation alarms activated.

No Health Physics Technician Coverage = 17 hours. CH2M HILL Health Physics Technician not available during regular work hours.

Administrative Issues= 18 hours. Equipment set up, no air bottles, ACE's station computer failure.

Hydraulic Hammer Unit Maintenance = 17.5 hours. Required maintenance.

Work Package = 2 hours. Work package required review.

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APPENDIX E

SAMPLING LOGBOOK ENTRIES AND CHAIN OF CUSTODY FORMS (VERTICAL)

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Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-H97 1
Continues from Page NONE

9F# 305-001 7-21-05 CHARGE CODE:

CATION: 241-C-152 DIVERSION BOX, C-FARM, 200 EAST

RK ORDER # 2W-03-00792/W RWP:

DE: ONE SET OF ANTI-C's, SUPPLIED AIR RESPIRATOR, HARD HAT, SURGEONS GLOVES, EAR PLUGS

ERSONNEL:

JG HOGAN	NCO	
KB HULSE	NCO	
DUDLEY	NCO	
SNOOK	NCO	
STEVENS	HPT	
OLSON	DRILLER	
WORLEY	DRILLER	
HA SYDNOR	CUSTOMER	373-3967/E6-35

MPLE EVENT: IN SUPPORT OF THE EVENTUAL RETRIEVAL OF SINGLE HELL TANK WASTE, THE SINGLE-SHELL TANK PROGRAM VADOSE ZONE PRO-SECT WAS GIVEN RESPONSIBILITY FOR COLLECTING AND PROVIDING SUB-URFACE DATA FROM THE SINGLE-SHELL TANK FARM FACILITIES. ONE OF HE FIELD CHARACTERIZATION EFFORTS IDENTIFIED IS THE COLLECTION F VADOSE ZONE DATA FROM THE INSTALLATION OF A BOREHOLE ADJACENT O THE 241-C-152 DIVERSION BOX. A SERIES OF DIRECT PUSH TECHNOL-GY INVESTIGATION HOLES ARE PLANNED NEAR THE DIVERSION BOX TO VALUATE SUBSURFACE CONDITIONS PRIOR TO DRILLING THE BOREHOLE. HE PUSH LOCATIONS WILL BE UTILIZED TO DETERMINE THE NEAR SURFACE ERTICAL AND LATERAL EXTENT OF Cs-137 CONTAMINATION. THE DIRECT USH DATA IS DESIGNED TO IDENTIFY THE PALEOSOL LAYER, THE REAL AND VERTICAL EXTENT OF THE SHALLOW SOIL CONTAMINATION, QUANTIFY THE CONTAMINATION LEVELS OF THE GAMMA EMITTING NUCLIDES AND QUANTIFY THE SOIL MOISTURE CONTENT. A HYDR-ULIC HAMMER-DRIVEN DIRECT PUSH SYSTEM MOUNTED ON A BACKHOE WILL BE USED TO COLLECT THE SAMPLES. EACH SAMPLER AS TWO, NINE INCH STAINLESS STEEL LINERS Continued on Page 2

GHOGAN
MRATEK J7 Hogan 7-21-05
Signed Date

Read and Understood By
Signed Date

Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-H97
Continues from Page 1

7MPLE EVENT: (CONT) WHICH ~~HAVE~~ HA 7-22-05 ARE 1.38 IN ID. AFTER THE
SAMPLER IS PUSHED TO DEPTH THE SAMPLER WILL BE OPENED,
IND THE TWO LINERS WILL BE CAPPED AND SENT TO THE 325
AB FOR ANALYSIS. AN EQUIPMENT RINSATE BLANK OF THE
LEANED SAMPLER WILL BE RUN TO SATISFY Q.C. REQUIREMENTS.
LL SAMPLE EQUIPMENT THAT WILL COME IN CONTACT WITH SAMPLE MAT-
RIAL WILL BE CLEANED PER DTS-SSPM-001 SP 2-5.
UE TO THE LENGTH OF THE SAMPLE EVENT, ALL ENTRIES WILL
BE MADE CHRONOLOGICALLY.

7-21-05
1230 ARRIVE AT 6269 BLDG TO COLLECT SAMPLE EQUIPMENT
1300 PICK UP MASKS AT 2704 HV
1330 ON SITE C-FARM AWAITING HPT'S
7-22-05
0052 PRE JOB AT C-FARM. ATTENDING PERSONNEL, JG HOGAN
(NCO) KB HULSE (NCO), SA SNOOK (NCO), DO DUDLEY (NCO), LR STEVENS
(HPT) VD RHODES (HPT) S WORLEY (PIC/DRILLER) K OLSON (DRILLER)
HA SYDNOR (CUSTOMER). THE PLAN IS TO DECOMMISSION HOLE
C4405 AND THEN SAMPLE HOLE # C4406.
146 DRILLERS ENTER FARM TO DECOMMISSION HOLE C4405
218 ALL DRILL STRING REMOVED FROM HOLE
1230 FILLING HOLE WITH CEMENT
1240 DRESSING IN FOR SAMPLE AT BOREHOLE C4406
257 ATTACHING SAMPLER TO DRILL RIG
300 ADVANCING DRILL STRING TO SAMPLE DEPTH
315 SAMPLER SET AT 12' BELOW GROUND SURFACE
330 DRILLERS AND HPT'S BOTTLES ARE BEING CHANGED OUT
336 DRIVING SAMPLER
339 STOPPED DRIVING AFTER 1.2', NEED TO ADD ADDITIONAL
PIECE OF DRILL STRING
343 DONE, DRIVE SAMPLER TO 14.5'
400 SAMPLER TO SURFACE, HPT RECORDS NO CONTAMINATION
410 BREAKING SAMPLER DOWN. APPROXIMATELY 60%
RECOVERY IN A LINER, B LINER EMPTY. CAPPED ENDS
OF A LINER. KNOCKED LOOSE THE DIRT FROM THE
SHOE AND COLLECTED IT IN A PLASTIC Continued on Page 3

RATEK
HOGAN JG Hogan 7-22-05
Signed Date Signed Date

Read and Understood By

Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-H97 3

Continues from Page 2

7-22-05 (CONT)

BAG. A LINER IS SAMPLE # S05001-01A, DIRT FROM SHOE PLACED IN A 1L POLY BOTTLE, SAMPLE # S05001-01

DATE: 7-22-05 TIME: 0343	SAMPLE #: S05001-01	
COC#: 102862 BOREHOLE #: C4406	DEPTH: 12.0'-13.1'	
	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	60	~~0~~
COMMENTS:		
A LINER AND SHOE FILLED WITH SALT + PEPPER SAND. APPEARS WHEN DRILLERS STOPPED SAMPLE PUSH TO ADD PIPE, SAMPLER PLUGGED UP. NO CONTAMINATION DETECTED. LINER A: 12.0'-12.7', SHOE: 12.7'-13.1'		

7-22-05

500 MOVED SAMPLES TO 6269 BLDG, STORED IN CUSTODY FRIDGE.

230 PACKAGED SAMPLES FOR SHIPMENT TO 325 LAB

305 RELINQUISHED CUSTODY OF SAMPLES TO T. VICKERMAN AT 325 LAB.

7-25-05

2230 ARRIVE AT 6269 BLDG TO COLLECT EQUIPMENT

7-26-05

0025 2704 MASK STATION DOWN UNTIL 0045, WAITING TO PICK UP MASKS

0100 PRE JOB PERSONNEL: DR BREWINGTON (NCO) JG HOGAN (NCO) L BROWN (HPT) LR STEVENS (HPT) S WORLEY (DRILLER) K OLSON (DRILLER) S SNOOK (NCO) D DUDLEY (NCO) ~~EL~~ A SYDNOR (CUSTOMER) B MITCHELL (DTS/SAFETY) B RANDELL (PNG) PLAN IS TO SAMPLE C4408 AT 9.5'-11.0' AND 4404 AT 20.0'-21.5'.

158 ENTER C-FARM

202 ATTACHING SAMPLER TO DRILL ON C4408. DRIVING SAMPLER TO DEPTH

Continued on Page 4

Read and Understood By

RATEK
GHOGAN JGHogan 7-26-05

Signed Date Signed Date

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Continues from Page

7-26-05 (CONT.)
0212 ATTACHING RODS TO REMOVE PLUG
0220 DRIVING SAMPLER FROM 9.5' - 11.6' - OVERDROVE TWO"
0222 DONE SAMPLE # S05001-02
0230 REMOVING DRILL STRING. HPT DETECTED 500 CPM ON 2ND PIECE OF DRILL STRING - DECONNING DRILL STRING
0240 BAGGED DRILL STRING AS RAD CONTAMINATED 250 CPM/FIXED
0250 BREAKING SAMPLER LOOSE - NO DETECTABLE
0300 MOVED SAMPLER TO TABLE AND BROKE IT OPEN 100% RECOVERY. HPT DETECTED 800 CPM ON SPECK OF DIRT AT TOP OF SAMPLER - DID NOT COLLECT PER CUSTOMERS DIRECTION. CAPPED BOTH LINERS + COLLECTED DIRT FROM SHOE INTO 1L POLY BOTTLE
0330 EXITING FARM
0400 SURVEYED OUT OF C-FARM LUNCH BREAK

7-26-05

DATE: 7-26-05 TIME: 0222	SAMPLE #: S05001-02	
COC#: 102863 BOREHOLE #: C4408	DEPTH: 9.5' - 11.6'	
	A	B
BLOW COUNT PER LINER	N/A	
% RECOVERY	100%	100%
COMMENTS: DROVE SAMPLER 25" - FINE GRAIN SANDS - SOME SILT. HPT DETECTED BETWEEN 150 CPM - 200 CPM ON SOIL. B LINER 9.5 - 10.25 A LINER 10.25 - 11.00 SHOE 11.00 - 11.6 COLLECTED CONTENTS OF SHOE IN 1L POLY BOTTLE		

7-26-05

ONE ATTACHMENT ON THIS PAGE

0535 DRILLERS ENTERING FARM TO RE-POSITION RIG - NO TIME FOR ANOTHER SAMPLE.
0540 LEAVING SITE.
7-26-05
2230 ARRIVED AT 6269 BUILDING TO GATHER UP ALL EQUIPMENT.

Continued on Page 5

DURATEK
J G HOGAN — Signed — 7-26-05 — Date — Read and Understood By — Signed — Date

Project 241-C-152 Diversow Box Notebook No. DTS-SAWS-H97 5

Continues from Page

7-26-05
2330 ARRIVED AT 2704 HU TO PICKUP MASKS
7-27-05
0010 ASSEMBLED 4 SAMPLERS WITH SPACERS
0120 PRE JOB PERSONNEL: KB HULSE (NCO) FM HALL (NCO) → SAMPLERS, S. SNOOK (NCO) → TF support, L. BROWN (HPT) LR STEVENS (HPT) → TF support, S. WORLEY (Drillm) K OLSON (Driller) H.A. SNOOR (customer) B. Mitchell (DTS/SAFETY). PLAN is to obtain 2 samples #C4404 At 20.0'-21.5' AND #C4410 At 23.0'-24.5'
0140 ENTERED C-FARM
0145 ATTACHED SAMPLER ON DRILL RIG
0147 DRIVING SAMPLER ON C4404
0205 HAVE obtain SAMPLE DEPTH 20', REMOVING plug
0220 DRIVING SAMPLER 20.0' — ~~21.5~~ 22.1' 7-25-05
0226 DONE DRIVING SAMPLE # S05001-03
0315 BREAKING SAMPLER LOOSE AT TABLE - NO Detectable 100% RECOVERY
0330 EXITING C-FARM FOR BREAK
0500 ENTERED C-FARM
0507 ATTACHED SAMPLER ON DRILL RIG
0509 DRIVING SAMPLER ON C4410
0535 HAVE obtain SAMPLE Depth 23', REMOVING plug
0600 DRIVING SAMPLER 23.0' — ~~24.5~~ 25.1' 7-25-05
0604 DONE DRIVING SAMPLE # S05001-04
0648 BREAKING SAMPLER LOOSE AT TABLE - NO Detectable 100% RECOVERY
0700 EXITED C-FARM
0710 RECOVERED SAMPLES AND SAMPLING EQUIPMENT AFTER Being SURVEYED
0730 LEAVING SITE
0745 ARRIVED BACK AT 6269 Building
CONTINUED INFORMATION is ON NEXT page that is pertinate to these SAMPLES AND Depths taken
All SAMPLES will be delivered to the 325 Bldg

Continued on Page 6

Read and Understood By

FM HALL 7-26-05/7-27-05

Signed Date Signed Date

6

Project 241-C-152 Diverson Box Notebook No. DTS-SAWS-H97

Continues from Page 5

DATE: 7-27-05 TIME: 0226	SAMPLE #: S05001-03	
COC#: 102863 BOREHOLE #: C4404	DEPTH: 20.0' - ~~21.5'~~ 22.1'	
	(A)	(B)
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	100%

COMMENTS: Salt + pepper gravel and some sand

B Liner = 20.0' - 20.75'

A Liner = 20.75' - 21.50'

Collected contents of shoe in 1l Bottle (Poly)

Shoe = 21.5' - 22.1'

7-27-05

DATE: 7-27-05 TIME: 0604	SAMPLE #: S05001-04	
COC#: 102863 BOREHOLE #: C4410	DEPTH: 23.0' - ~~24.5'~~ 25.1'	
	(A)	(B)
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	100%

COMMENTS: Salt + pepper, sand and gravel

Shoe had bottom 1" pure fine sand

B Liner = 23.0' - 23.75'

A Liner = 23.75' - 24.50'

Collected contents of shoe in 1l Bottle (poly)

Shoe = 24.5' - 25.1'

7-27-05

Two forms attached this page

Continued on Page 7

Read and Understood By

M Hall 7-26-05/7-27-05

Signed Date Signed Date

Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-497

Continues from Page 6

2-05
:0 ARRIVE AT 6269 TO PICKUP SUPPLIES
:0 PICK UP SCUBA RACKS AT 2704
:0 ONSITE C-FARM
20 PRE JOB - SAME PERSONNEL WITH EXCEPTION OF KJ YOUNG NCO/ SAMPLER. DISCUSSED SAMPLE COLLECTION AT BOREHOLE 4414 AND IF TIME PERMITS, BOREHOLE 4412
33 DRESSING IN
:7 ENTER C-FARM
2 ATTACH SAMPLER TO PUSH ROD
3 DRIVING SAMPLER TO DEPTH OF 13.5' AT BOREHOLE C4414
37 DRIVING SAMPLER FROM 13.5'
39 DONE, DROVE TO 15.6
12 REMOVING DRILL STRING
:5 BREAKING SAMPLER DOWN
:0 SAMPLER 100% FULL, NO CONTAMINATION, SAMPLE # S05001-05
30 EXIT FARM FOR LUNCH
:0 DRILLERS ENTERING FARM
:5 ATTACHING SAMPLER TO DRILL RIG
0 DRIVING TO DEPTH AT BOREHOLE C4412
:6 DRIVING SAMPLER FROM 23.5'
07 DONE, DROVE TO 25.6'
30 BREAKING SAMPLER LOOSE FROM RIG
00 SAMPLER 100% FULL, NO CONTAMINATION, SAMPLE # S05001-06
15 EXITING TANK FARM, ALL SAMPLES TO BE SHIPPED TO 325 LAB.

Continued on Page 8

RATEK
. HOGAN

Signed 8-3-05 Date

Read and Understood By

Signed Date

8 Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-497

Continues from Page

8-3-05

DATE: 8-3-05 TIME: 0139	SAMPLE #: S05001-05	
COC#: 102870 BOREHOLE #: C4414	DEPTH: 13.5-15.6	
	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	100%

COMMENTS: DROVE SAMPLER 25" - SALT + PEPPER SANDS, MORE GRANULER. NO CONTAMINATION DETECTED
B LINER: 13.50'-14.25'
A LINER: 14.25'-15.0'
SHOE: 15.0'-15.6'
COLLECTED CONTENTS OF SHOE IN 1L POLY BOTTLE

8-3-05

8-3-05

DATE: 8-3-05 TIME: 0507	SAMPLE #: S05001-06	
COC#: 102870 BOREHOLE #: C4412	DEPTH: 23.5'-25.6'	
	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	100%

COMMENTS: DROVE SAMPLER 25" - SANDS, SOME FINE SILT, SOME MOISTURE. NO CONTAMINATION DETECTED.
B LINER: 23.5'-24.25'
A LINER: 24.25'-25.00'
SHOE: 25.0'-25.6'
COLLECTED CONTENTS OF SHOE IN 1L POLY BOTTLE

8-3-05

NOTE: TWO FORMS ATTACHED THIS PAGE

Continued on Page 9

INRATEK
JG Hogan
Signed

8-3-05
Date

Read and Understood By

Signed

Date

Project 241-C-152 Diversion Box Notebook No. DTS-SHWS-H97 9

Continues from Page 8

-7-05
1100 arrived at 6269 Building to gather equipment
1130 Picked up air tanks and masks at 2705 Building
1145 On Site C Farm S. Worley presented Pre-job
1120 Drillers entered farm to pull remaining rods from Borehole C4421
1230 Entered farm to sample Borehole C4422
0236 Driving Sampler was attached
1248 Sample depth of 11.5' was reached at ground level
1304 Driving sampler 11.5' to 13.6'
0306 Sampler was pulled up
0320 Sampler reached ground level surface 100% recovery of fine grain sand in liners Sample# S05001-07 were obtained
0354 Undressed and surveyed out of farm
0450 Drillers reentered farm to ~~reposition~~ reposition drill rig for next borehole C4420
0525 Sampler attached
0527 Driving sampler to sample depth
0550 Sampler at Sample depth of 16.5, Sampler was placed in safe condition, workers exited farm. Samples will be shipped to 325 Lab

DRB 8-9-05

DATE: 8-9-05	TIME: 0306	SAMPLE #: S05001-07	
COC#: 102871	BOREHOLE #: C4422	DEPTH: 11.5 To 13.6'	
		A	B
BLOW COUNT PER LINER		N/A	N/A
% RECOVERY		100%	100%

COMMENTS: Drove Sampler 13.6'
Fine grain sand. No contamination detected.
B Liner: 11.50'-12.25'
A Liner 12.25-13.0'
Shoe 13.0'-13.6'
Collected Contents of Shoe in 1L Poly Bottle

DRB 8-9-05

One form attached this page. 10

Read and Understood By

R. Brewington	8-9-05	KB Hulse	8-9-05
	Date	Signed	Date

10

Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-497

Continues from Page 9

8-9-05
1030 ARRIVE AT 345 HILL ST TO PICK UP TRUCK
1115 ARRIVE AT 6269 BLDG TO RETRIEVE SUPPLIES.
8-10-05
1215 PICK UP MASKS AND RACKS AT 2704 HV
1230 ON SITE C-FARM WINDS FROM SW AT 15-25 - NO WORK
0230 PRE JOB PERSONNEL: HOGAN/YOUNG (DTS SAMPLERS), WORLEY (PIC) OLSON/REPKO (DRILLERS) SNOOK/DUDLEY (CHG NCO'S) BROWN/STEVENS (CHG HPT'S) - PLAN IS TO COLLECT SAMPLE 505001-08 FROM BOREHOLE C4420 - SAMPLER IS AT 16.5' BGS
0315 DRILLERS ENTER FARM
0338 DRIVING SAMPLER 16.5-18.6
0339 DONE - TRIPPING OUT DRILL ROD
0350 SAMPLERS ENTER FARM
0412 SAMPLER OFF RIG
0420 FINISHED SAMPLE COLLECTION 95% RECOVERY - MISSING ABOUT 1" IN TOP OF "B" LINER, LOST BOTTOM SOIL FROM SHOE REMOVING SAMPLER FROM HOLE - NO CONTAMINATION DETECTED
0426 RIG SET UP OVER BOREHOLE C4418, ATTACHED CLEAN SAMPLER
0428 DRIVING SAMPLE FROM
0433 BLEW HYDRAULIC HOSE ON RIG - SHUT RIG DOWN - SAMPLER ABOUT 3" ABOVE START DEPTH. CLEANING UP SPILLED OIL
0443 EXITING FARM - SHIPPED SAMPLES TO CUSTODY FRIDGE AT 6269 BLDG.

Continued on Page 11

DARATEK

Read and Understood By

IG HOGAN Signed — Date 8-18-05 — Signed — Date

Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-H97 11

Continues from Page 10

8-10-05

DATE: 8-10-05 TIME: 0339 SAMPLE #: 505001-08		
COC#: 102865 BOREHOLE #: C4420 DEPTH: 16.5 - 18.6		
	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	95%
COMMENTS:		
DROVE SAMPLER 25" — SANDS, SOME SILT		
LOST PART OF SOIL FROM SHOE DURING RETRIEVAL		
B LINER 16.5 - 17.25'		
A LINER 17.25' - 18.0'		
SHOE 18.0' - 18.6'		
NO CONTAMINATION DETECTED		

8-10-05

ONE FORM ATTACHED THIS PAGE

Continued on Page 12

RATEK HOGAN

Signed: T Hogan Date: 8-10-05

Read and Understood By

Signed Date

Project 241-C-152 Diversion Box Notebook No. DTS-SAWS-1497
Continues from Page 8

8-10-05
1030 Arrived at 345 Hills to Pick up truck
1100 Pick up Parks & Moses at 2704 Building
1150 On Site C-Farm, Winds gusting to 30 mph, on Standby, assembled Sampler (for C4416)
8-11-05 Pre job at C Farm Personnel same as night before
0200 with exception of D. Brewington (Sampler)
0220 Drillers entered farm to attached new hose
0348 Driving sampler (Borehole C4418 See time 426 page 10 of this log book
0349 Sampler driven to 13.6 BGS (started at 11.5 Bgs)
0356 Samplers entered farm, drillers in process of bringing up drill string.
0405 Sampler at ground surface
0413 Sampler was released.
0425 Samplers removing and capping liners and transfering sample out of shoe to 1 liter poly bottle applied labels, Sample # 505001-09 These samples of sand and silt with some moisture had a 100% recovery, no contamination was found.
0449 Drillers moved drill to Borehole C4416, sampler was connected, drilling started
0506 At depth 14.5 BGS. Drill rig was shut down and left in safe condition
0510 Left C farm. Samples were placed in custody fridge at 6269 Building.

DPB
8-11-05

Continued on Page 13

Read and Understood By

R. Brewington 8-11-05
Signed Date Signed Date

Project 241-C-152 Diversion Box Notebook No. DTS-SA105-H97 13

Continues from Page 12

DRB 8-11-05

DATE: 8-11-05 TIME:	SAMPLE #: 505001-09	
COC#: 102865 BOREHOLE #: C4418	DEPTH:	
	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	100%

COMMENTS: Drove Sampler to 13.6' BGS
Sand with silt with some moisture.
B Liner: 11.5'-12.25'
A Liner: 12.25'-13.00'
Shoe: 13.0'-13.6'
Collected Contents of Shoe in 1L Poly Bottle
No contamination found.

DRB 8-11-05

One form attached this page

DRB 8-11-05

Continued on Page 8

Read and Understood By

R. Brewington 8-11-05
J.R. Brewington

Signed Date Signed Date

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Project 241-C-152 Diversion Box Notebook No. DTS-SAWS-1197

Continues from Page 13

8-11-05
1030 PM ARRIVED AT 345 HILL ST TO Pickup Truck
1100 PM AT 6269 Bldg to Pick up Equipment
1130 PM Picked up MASK + Bottle Rack at 2704 HV
1145 PM ON SITE AT C FARM, RJ YOUNG + KB Hulse SAMPLERS
8-12-05
1215 Am Pre job conducted by Scott Morley
Rig is set up on Borehole C4416 with the Sampler pushed to 14.5' BGS. Plan is to Remove Retaining Bolt and Drive Sampler 25". THEN Pull Sampler and Decomission the Bore Hole.
0100 Drillers Entering Farm
0225 Finially got rod to start in Retaining Bolt
0229 Driving Sampler
0230 Sampler Driven 25" Pulling Sampler
0300 Capping Liners from Sampler
0320 Exiting Farm - Shipped Samples to Custody Fridge at 6269 Bldg.

DATE: 8-12-05 TIME: 0230 SAMPLE #: 505001-10
COC#: 102865 BOREHOLE #: C4416 DEPTH: 14.5 - 16.6'

	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	100%

COMMENTS: Drove Sampler 25" wet silty sand in the shoe, Liner A wet outside
B Liner: 14.5' - 15.25'
A Liner: 15.25' - 16'
Shoe: 16.0' - 16.6'
Shoe contents placed in 1L Poly Bottle. No Radioactivity Detected with Hand Held Instrument

ONE ATTACHMENT ON THIS PAGE

Continued on Page 15

Read and Understood By

KB Hulse KB Hulse 8-17-05
Signed Date Signed Date

Project 241-C-152 Diversion Box Notebook No. DTS-SA105-H97 15

Continues from Page 14

9-8-05

0830 Picked Mast + Rack up at 2705 Building, acced in RWP FP-606

0900 On Site C Farm Briefed from S. Worley D. Brewington NCO, K. Young NCO D. Dudley NCO D. Judy HPT K. Olsen driller M. Repko driller Plan is to safely sample 3 borehole

0920 Drillers entered farm, repositioned drill rig

0958 Drillers begin driving sampler for borehole C4436

1015 The tip key from the sampler was pulled

1018 Drove sampler 25", 20 seconds

1019 Sampler is being pulled up

1034 Sampler reaches ground surface

1036 Sampler in farm K. Young

1038 Sampler is being disassembled Borehole C4436, Sample # S05001-17 16'-17.5'

One form attached this page.

DRB 9-8-05

DATE: 9-8-05 TIME: 1018	SAMPLE #: S05001-17	
COC#: 102894 BOREHOLE #: C4436	DEPTH: 16'-17.5'	
	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	80%
COMMENTS: Drove Sampler to 17.5' BGS		
B Liner: 16.0'-16.75' (coarse sand)		
A Liner 16.75'-17.50' (salt + pepper sand)		
Shoe - No recovery - lost on the way up.		
No contamination found.		

DRB 9-8-05

1102 Driving Sampler Borehole C4434

1105 Sampler to 13.5'-15' pulled tip key

1112 Sample Rig down, Headpin pulled upast

Continued on Page 16

Read and Understood By

Brewington D. Brewington 9-08-05

Signed Date Signed Date

16 Project 241-C-152 Diversion Box Notebook No. DTS-SAWS-497

Continues from Page 15

1112 The pin broke. New Head & pin attached.
1154 Sampler at ground surface.
1202 Sampler was placed on table to obtain sample
Borehole C4434 Sample # S05001-18 depth 13.5'-15.0'

One form attached this page.

DATE: 9-8-05 TIME: 1105 SAMPLE #: B 05001 -18		
COC#: 102894 BOREHOLE #: C 4434 DEPTH: 13.5'-15.0'		
	A	B
BLOW COUNT PER LINER	N/A	N/A
% RECOVERY	100%	100%
COMMENTS: Drove Sampler to 15' BGS		
B liner: 13.5-14.25' (mud & fine grain)		
A liner: 14.25'-15.0' (moist sand)		
Shoe: ~~14.97'-15.0'~~ 15.0'-15.6' (fine impacted cobbles)		
Collected contents of shoe in 1 liter Bottle		
No contamination found.		

1210 Drillers moved drill rig to start borehole C4428
1219 Sampler is being driven down
1236 Sampler driven to depth, Drill rig placed in safe condition all personel exit farm.

Continued on Page

Read and Understood By

D.R. Brewington for D.R. Brewington 9-9-05
Signed Date Signed Date

Project 241 - C - 152 DIVERSION BOX Notebook No. DTS-SAWS-H97 17

Continues from Page 16

9-9-05

PICKED UP MASK + RACK AND ACED IN AT 2705 Building

0845 ON SITE AT C-FARM, Tailgate meeting Attendees:

Scott H. Worley DFS Supervisor
Kelley C. Olson Driller
Dean O. Dudley NCO
Carl Ramon NCO
Samuel Regev HPT
Vivian M. Wyant HPT
KB Hulse NCO SAMPLER

RIG HAD Been SETUP ON Borehole C4428 and THE SAMPLER HAD BEEN PUSHED TO 18'. SAMPLE DEPTH

0920 Drillers ENTERED FARM
0928 Driving SAMPLER on Borehole C4428
0929 Done Driving SAMPLER SAMPLE # S05001-19
~~1000~~ SAMPLER DRIVEN 25"
1000 SAMPLER ON BREAKDOWN TABLE
1020 MOVED RIG TO Borehole C4426, HAD TO Leave FARM Due to High WINDS. FORCAST FOR CONTINUED WIND

9-20-05

DATE: 9-9-05 TIME: 0929	SAMPLE #: S05001-19	
COC#: 102869 BOREHOLE #: C4428	DEPTH: 18'-20.1'	
	A	B
~~BLOW COUNT PER~~ Depth LINER	18.75'-19.5'	18'-18.75'
% RECOVERY	100 %	100 %
COMMENTS: Shoe 100 % 19.5'-20.1' Coarse SAND		

9-20-05

ONE ATTACHMENT ON THIS PAGE

Continued on Page 18

Read and Understood By

B. Hulse KB Hulse 9/20/05

Signed Date Signed Date

18 Project 241-C-152 Diversion Box Notebook No. DTS-SAWS-H97

Continues from Page 17

9-12-05
PICKED UP MASK + RACK AND ACED IN ON RWP IS-606
0900 ON SITE C-FARM, Pre-job TAIL GATE ATTENDED BY

Scott A Snook	NCO
Jeff A Clayton	HPT
Leland Brown	HPT
Scott Worley	Supervisor
Kelly Olson	Driller
Mark Repko	Driller Helper
F.M. Hall	NCO SAMPLER
K.B. Hulse	NCO SAMPLER

0940 Drillers ENTERED FARM, Rig set up on Borehole C4426, Maintance done on Hydrolic system
0955 Driving sampler to Depth of 5.5'
1000 Having machanical problems with Push Rig
1055 Pulling key AND ROD TO PUSH SAMPLER
1100 DROVE SAMPLER 25" SAMPLE # S05001-20
1110 SAMPLER ON BREAK DOWN TABLE
1130 LEAVING FARM, Rig needs Repaired.

DATE: 9-12-05	TIME: 1100	SAMPLE #: S05001-20	
COC#: 102867	BOREHOLE #: C4426	DEPTH: 5.5'-7.03'	
		A	B
~~BLOW COUNT~~ Depth PER LINER		5.68'-6.43'	5.5'-5.68'
% RECOVERY		100%	20%

COMMENTS: Shoe 100% Shoe 6.43'-7.03'
Top of Shoe contained FINE SAND almost clay looking
Bottom of shoe coarser SAND
Liner A bottom clay/Fine sand, Top Gravel + SAND
Liner B Loose Gravel fell out when removing tip
Void filled with Plastic

ONE ATTACHMENT ON THIS PAGE

Continued on Page 19

Read and Understood By

KB Hulse KB Hulse	9-20-05		
Signed	Date	Signed	Date

Project 241-C-152 Diversion Box Notebook No. DTS-SAWS-H97 19

Continues from Page 18

9-13-05

PICKED UP MASK + RACK AT 2705 Building, ACED UNDER RWP 25-606

0830 ON SITE AT C-FARM, TAIL GATE ATTENDED BY

F.M.	HALL	NCO SAMPLER
Scott	Worley	Supervisor
Kelly	Olson	Driller
Mark	Repko	Driller Helper
Leland	Brown	HPT
Lance	STEVENS	HPT
Scott	SNOOK	NCO
Dean	Dudley	NCO

0845 Drillers ENTERED FARM, RIG SET UP ON Borehole C4430 PRIOR AND SAMPLER DRIVEN TO SAMPLE DEPTH OF 18.5', Key Removed

0905 SAMPLER DRIVEN 25" SAMPLE # S05001-21

1000 SAMPLER ON BREAKDOWN TABLE

1030 EXITED FARM

9-20-05

DATE: 9-13-05	TIME: 1000	SAMPLE #: S05001-21	
COC#: 102867	BOREHOLE #: 4430	DEPTH:	
		A	B
~~BLOW COUNT~~ DEPTH PER LINER		19.25'-20.0'	18.5-19.25'
% RECOVERY		100%	100%
COMMENTS: SHOE 100% 20.0'-20.5'			

9-20-05

9-20-05

ONE ATTACHMENT ON THIS PAGE

Continued on Page 20

Read and Understood By

B Hulse	9-20-05		
Signed	Date	Signed	Date

0 Project 241-C-152 Diversion Box Notebook No. DTS-SAWS-H97

Continues from Page 19

9-6-05

0900 ON SITE C-FARM, MASK AND RACKS HAD BEEN PICKUP AT 2705 Building, PRE-job MEETING CONDUCTED BY S. Worley, Rig had been set ON Bore hole C4432 ON 9-2-05 and the sampler pushed to 20.5'.

0930 DRILLERS ENTERED FARM AND STARTING PULLING OUT INNER ROD WITH KEY

0937 STARTED DRIVING SAMPLER, SAMPLER DRIVEN 25"

0938 DONE DRIVING SAMPLER SAMPLE # S05001-11

1005 SAMPLER ON BREAK DOWN TABLE

1035 RIG SET ON BORE HOLE C4440

1040 SAMPLER PUSHED TO SAMPLE DEPTH of 6.5'

1057 DRIVING SAMPLER SAMPLE # S05001-12

1058 DONE DRIVING SAMPLER, Drove 25"

1106 SAMPLER ON BREAKDOWN TABLE

POOR RECOVERY, SAMPLER Fell at First/easly Deiven

1130 EXITED FARM

9-19-05

DATE: 9-6-05 TIME: 0938 SAMPLE #: S05001-11

COC#: 102867 BOREHOLE #: C4432 DEPTH: 20.5'-21.64'

	A	B
~~BLOW COUNT~~ DEPT PER LINER	21.04'-21.64'	20.5'-21.04'
% RECOVERY	85 %	75 %

COMMENTS: Lost shoe contents and bottom 2" of LINER A, Liner B + A ~~WET~~ VOID FILLED WITH Plastic, Bottom of Hole WET

9-19-05

ONE ATTACHMENT ON THIS PAGE

Continued on Page 21

Read and Understood By

KB Hulse KB Hulse 9-19-05

Signed Date Signed Date

Project 241-C-152 Diversion Box Notebook No. DTS-SAWS-H97 21
Continues from Page 20

9-19-05

DATE: 9-6-05 TIME: 1058 SAMPLE #: S050001-12
COC#: 102867 BOREHOLE #: C4440 DEPTH: 6.5' – 7.3'

	A	B
~~BLOW COUNT~~ Depth PER LINER	6.5' – 6.9'	
% RECOVERY	50%	

COMMENTS: Shoe 90% 6.9' – 7.3' Contained Wet Fine SAND with a small rock at Bottom Liner "A" Void filled with Plastic Driller stated that sampler ~~Was~~ DROVE VERY EASY The first 1.3'

9-19-05

9-7-05
0905 PRE-JOB Breifing, plan to sample Borehole C4445 as a Replacement for failed C4440, AND SAMPLE Bore hole C4438
0910 ASSEMBLING THREE SAMPLERS
0925 SCOTT CONRAD of ENVIROMENTAL COMPLIANCE ON SITE TO CHECK ON THE CONEPENTROMETER WORK
0935 RIG MOVED TO Bore hole C4445 and ATTACHING SAMPLER
0940 SAMPLER AT SAMPLE DEPTH OF 6.5'
0947 DRIVING SAMPLER Bore hole C4445
0948 DONE DRIVING SAMPLER, SAMPLE # S05001-13
0953 SAMPLER ON TABLE
1007 Repositioned Drill Rig to Bore hole C4438
1040 SAMPLER AT SAMPLE DEPTH of 13.5', STARTING DRIVING SAMPLER
1041 DONE DRIVING SAMPLER, SAMPLE # S05001-14
1100 SAMPLER ON BREAKDOWN TABLE

ONE ATTACHMENT ON THIS PAGE

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Read and Understood By

Signed Date Signed Date

22
Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-1497
Continues from Page 21

9-19-05

DATE: 9-7-05	TIME: 0948	SAMPLE #: S05001-13	
COC#: 102869	BOREHOLE #: C4445	DEPTH: 6.5'-8.1'	
		A	B
~~BLOW COUNT~~ DEPTH PER LINER		6.75'-7.50'	6.5'-6.75'
% RECOVERY		100%	33%
COMMENTS: SHOE 100% 7.5'-8.1'			
SALT + PEPPER SAND LINER A, FINE SAND SHOE			

9-19-05

9-19-05

DATE: 9-7-05	TIME: 1041	SAMPLE #: S05001-14	
COC#: 102869	BOREHOLE #: C4438	DEPTH: 13.5'-15.5'	
		A	B
~~BLOW COUNT~~ Depth PER LINER		14.25'-15'	13.5'-14.25'
% RECOVERY		100%	100%
COMMENTS: Shoe 80% 15'-15.5' soil semi wet			

9-19-05

9-19-05

DATE: 9-7-05	TIME: 1147	SAMPLE #: S05001-15	
COC#: 102869	BOREHOLE #: C4448	DEPTH: 17'-19'	
		A	B
~~BLOW COUNT~~ Depth PER LINER		17.75'-18.5'	17'-17.75'
% RECOVERY		100%	100%
COMMENTS: Shoe 80% 18.5'-19' Dry Gravel			
Liner "A" Bottom gravel / Top FINE SAND			
LINER "B" Bottom Dry SANDY / Top FINE Powder			

9-19-05

SAMPLE # S05001-16 AN EQUIPMENT BLANK TAKEN ON 9-7-05 at 1235 IN A 250 ml aG Lot # 010622

Three ATTACHMENTS ON THIS PAGE

Continued on Page 23

Read and Understood By

KB Hulse KB Hulse 9-19-05

Signed Date Signed Date

Project 241-C-152 DIVERSION BOX Notebook No. DTS-SAWS-H97 23

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CONTINUED 9-7-05

18 Drill RIG REPOSITIONED ON Borehole C4448

146 SAMPLER AT SAMPLE DEPTH of 12', DRIVING SAMPLER

147 DONE Driving SAMPLER SAMPLE # S05001-15

205 SAMPLER ON BREAKDOWN TABLE

218 Exiting FARM

235 Equipment BLANK TAKEN By pouring DI WATER OVER CLEAN LINER, shoe, TIP into Bowl, water THEN POURED INTO 250 ml aG sAmple bottle.

RBH 9-20-05

Continued on Page NONE

Read and Understood By

Signed	Date	Signed	Date
LB Hulse RB Hulse	9-20-05		

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102862

Page of

Collector	DURATEK JG HOGAN	Contact/Requestor	H. A. SYDNOR
Tel. No.	373-3967	MSIN	E6-35
FAX			
SAF Number	S05-001	Sample Origin	C FARM, 200 EAST
Purchase Order/Charge Code	120856 / ES10		
Project Title	241-C-152 DIVERSION BOX	Logbook #	DTS-SAWS-H97
Ice Chest #	KEH #1	Temp.	
Shipped To (Lab)	325	Method of Shipment	GOVT. VEHICLE
Bill of Lading/Air Bill No.	N/A		
Protocol	RCRA	Data Turnaround	PER CONTRACT
Offsite Property No.	N/A		

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	DEPTH	Perservative
S05001-01		S	7-22-05	0343	(1) 1 L POLY	PER CONTRACT	12'7" - 13'1"	COOL 4°C
S05001-01A		S	↓	↓	(1) LINER	↓	12' - 12'7"	↓
					( )			
					( )			
					( )			
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					( )			
					( )			
					( )			
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					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☐
List all known wastes.

SPECIAL INSTRUCTIONS **Hold Time**

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK	J G HOGAN	J G Hogan	7-22-05 1305	T. Vickerman	Tracy Vickerman		7-22-05 1305
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102872

Page 1 of 1

Collector	KB Hulse	Contact/Requestor	H. A. Sydnor	Tel. No. 373-3967 MSIN E6-35 FAX	
SAF Number	S05-001	Sample Origin	C Farm, 200 East	Purchase Order/Charge Code	120856 / ES10
Project Title	241-C-152 Diversion Box	Logbook #	DTS-SAWS-H97	Ice Chest #	SAWS 148 Temp:
Shipped To (Lab)	325	Method of Shipment	Govt. Vehicle	Bill of Lading/Air Bill No.	N/A
Protocol	RCRA	Data Turnaround	Per Contract	Offsite Property No.	N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Bore Hole	Depth	Perservative
S05001-07		S	8-9-05	0304	(1) 1L P	Per Contract	C4422	13.0'-13.6'	Cool 4°
S05001-07A		S	↓	↓	(1) Liner	↓	↓	12.25'-13.0'	↓
S05001-07B		S	↓	↓	(1) Liner	↓	↓	11.50'-12.25'	↓
					( )				
					( )				
					( )				
					( )				
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					( )				
					( )				
					( )				
					( )				

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☐
List all known wastes.

SPECIAL INSTRUCTIONS Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	KB Hulse	KB Hulse	8-9-05 1355		JG Hogan	JG Hogan	8-9-05 1355
	JG Hogan	JG Hogan	8-9-05 2:35		M. Valenta	M. Valenta	8-9-05 2:35

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

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DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102865

Page 1 of 1

Collector	J. G. HOGAN	Contact/Requestor	H. A. SYDNOR	Tel. No. 373-3967 MSIN E6-35 FAX	
SAF Number	S05-001	Sample Origin	C FARM, 200 EAST	Purchase Order/Charge Code	120856 / ES10
Project Title	241-C-152 DIVERSION BOX	Logbook #	DTS-SAWS-H97	Ice Chest #	Temp:
Shipped To (Lab)	325	Method of Shipment	GOVT. VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	RCRA	Data Turnaround	PER CONTRACT	Offsite Property No.	N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	BOREHOLE	DEPTH	Perservative
S05001-08		S	8-10-05	0339	(1) 1 L Poly	PER CONTRACT	C4420	18.0' - 18.6'	COOL
S05001-08A		S	↓	0339	(1) LINER	↓	↓	17.25 - 18.0'	↓
S05001-08B		S	↓	0339	(1) LINER	↓	↓	16.5' - 17.25'	↓
S05001-09		S	8-11-05	0349	(1) 1 L Poly	PER CONTRACT	C4418	13.0' - 13.6'	COOL
S05001-09A		S	↓	0349	(1) LINER	↓	↓	12.25' - 13.0'	↓
S05001-09B		S	↓	0349	(1) LINER	↓	↓	11.5' - 12.25'	↓
S05001-10		S	8-12-5	0230	(1) 1 L Poly	PER contract	C4416	16.0 - 16.6'	COOL
S05001-10A		S	↓	0230	(1) Liner	↓	↓	15.25 - 16.00'	↓
S05001-10B		S	↓	0230	(1) Liner	↓	↓	14.5 - 15.25'	↓
					( )				
					( )				
					( )				

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☐
List all known wastes.

SPECIAL INSTRUCTIONS **Hold Time**

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J. G. HOGAN			8-22-05	CHARLS F. BROWN			8/22/05 1410
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

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Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102870

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Collector DURATEK J. G. HOGAN	Contact/Requestor H. A. SYDNOR	Tel. No. 373-3967 MSIN E6-35 FAX	
SAF Number S05-001	Sample Origin C FARM, 200 EAST	Purchase Order/Charge Code 120856 / ES10	
Project Title 241-C-152 DIVERSION BOX	Logbook # DTS-SAWS-H97	Ice Chest # SAWS148 Temp.	
Shipped To (Lab) 325	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. N/A	
Protocol RCRA	Data Turnaround PER CONTRACT	Offsite Property No. N/A	

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	BOREHOLE	DEPTH	Perservative
S05001-05		S	8-3-05	0139	(1) 1L POLY	PER CONTRACT	C4414	15.0' - 15.6'	COOL 4°C
S05001-05A		S	↓	↓	(1) LINER	↓	↓	14.25' - 15.0'	↓
S05001-05B		S	↓	↓	(1) LINER	↓	↓	13.5' - 14.25'	↓
S05001-06		S	↓	0507	(1) 1L POLY	↓	C4412	25.0' - 25.6'	↓
S05001-06A		S	↓	↓	(1) LINER	↓	↓	24.25' - 25.0'	↓
S05001-06B		S	↓	↓	(1) LINER	↓	↓	23.5' - 24.25'	↓
					( )				
					( )				
					( )				
					( )				
					( )				
					( )				

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☐ A8405

SPECIAL INSTRUCTIONS **Hold Time**

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DURATEK J. G. HOGAN		J G Hogan	AUG 03 2005 04		Chris F. Brown	Chris F. Brown	8/4/05 14:00
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102867

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Collector F.M. HALL	Contact/Requestor H.A. SYDNOR	Tel. No. 373-3967	MSIN E6-35 FAX
SAF Number S05-001	Sample Origin C FARM, 200 EAST	Purchase Order/Charge Code 120856 / ES10	
Project Title 241-C-152 DIVERSION BOX	Logbook # DTS-SAWS-H97	Ice Chest #	Temp:
Shipped To (Lab) 325	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. N/A	
Protocol RCRA	Data Turnaround PER CONTRACT	Offsite Property No. N/A	

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Bore hole	DEPTH	Perservative
S05001-11A		S	9/6/05	0938	(1) LINER	PER CONTRACT	C4432	21.04'-21.64'	COOL 4°C
S05001-11B		S	9/6/05	0938	(1) LINER		C4432	20.5'-21.04'	
S05001-12		S	9/6/05	1058	(1) ILP		C4440	6.9'-7.3'	
S05001-12A		S	9/6/05	1058	(1) LINER		C4440	6.5'-6.9'	
S05001-20		S	9/12/05	1100	(1) ILP	PER CONTRACT	C4426	6.43'-7.03	COOL 4°C
S05001-20A		S	9/12/05	1100	(1) LINER		C4426	5.68'-6.43'	
S05001-20B		S	9/12/05	1100	(1) LINER		C4426	5.5'-5.68'	
S05001-16		W	9/7/05	1235	(1) 250ml aG	PER CONTRACT	Equipment	Blank	Cool 4°C
S05001-21A		S	9/13/05	1000	(1) LINER	PER CONTRACT	C4430	19.25'-20.0'	cool 4°C
S05001-21B		S	9/13/05	1000	(1) Liner			18.5'-19.25'	
S05001-21		S	9/13/05	1000	(1) ILP			20.0'-20.5'	
					( )				

POSSIBLE SAMPLE HAZARDS/REMARKS
List all known wastes.

MSDS Yes ☐ No ☐

SPECIAL INSTRUCTIONS

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By- Print	Sign	Date/Time
F M	HALL	[signature]	1400 9-13-05	Michelle Valento	Michelle Valento	14:00 SEP 13 2005
Relinquished By			Date/Time	Received By		Date/Time
Relinquished By			Date/Time	Received By		Date/Time
Relinquished By			Date/Time	Received By		Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102869

Page of

Collector: K.B. Hulse	Contact/Requestor: H.A. Sydnor	Tel. No. 373-3967 MSIN E6-35 FAX
SAF Number: S05-001	Sample Origin: C Farm, 200 East	Purchase Order/Charge Code: 120856 / ES10
Project Title: 241-C-152 Diversion Box	Logbook #: DTS-SAWS-H97	Ice Chest #: Temp:
Shipped To (Lab): 325	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.: N/A
Protocol: RCRA	Data Turnaround: Per Contract	Offsite Property No.: N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Bore Hole	DEPTH	Perservative
S05001-13		S	9/7/05	0948	(1) 1LP	PER CONTRACT	C4445	7.5'-8.1'	Cool 4°C
S05001-13A		S	9/7/05	0948	(1) LINER		C4445	6.75'-7.5'	↓
S05001-13B		S	9/7/05	0948	(1) LINER		C4445	6.5'-6.75'	↓
S05001-14		S	9/7/05	1041	(1) 1LP		C4438	15'-15.5'	Cool 4°C
S05001-14A		S	9/7/05	1041	(1) LINER		C4438	14.25'-15'	↓
S05001-14B		S	9/7/05	1041	(1) LINER		C4438	13.5'-14.25'	↓
S05001-15		S	9/7/05	1147	(1) 1LP		C4448	18.5'-19'	Cool 4°C
S05001-15A		S	9/7/05	1147	(1) LINER		C4448	17.75'-18.5'	↓
S05001-15B		S	9/7/05	1147	(1) LINER		C4448	17'-17.75'	↓
S05001-19		S	9/9/05	0929	(1) 1LP		C4428	19.5'-20.1'	Cool 4°C
S05001-19A		S	9/9/05	0929	(1) LINER		C4428	18.75'-19.5'	↓
S05001-19B		S	9/9/05	0929	(1) LINER		C4428	18'-18.75'	↓

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☐
List all known wastes.

SPECIAL INSTRUCTIONS **Hold Time**

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
KB Hulse / KB Hulse	1200 SEP 13 2005	FM Hall / FM Hall	1200 SEP 13 2005
FM Hall / FM Hall	1400 SEP 13 2005	Michelle Valenta / Michelle Valenta	1400 SEP 13 2005

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102894

Page 1 of 1

Collector K. J. Young	Contact/Requestor H. A. Sydnor	Tel. No. 373-3967 MSIN E6-35 FAX
SAF Number S05-001	Sample Origin C Farm, 200 East	Purchase Order/Charge Code 120856 / ES10
Project Title 241-C-152 Diversion Box	Logbook # DTS-SAWS-1497	Ice Chest # Temp.
Shipped To (Lab) 325	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. N/A
Protocol RCRA	Data Turnaround Per Contract	Offsite Property No. N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Bore Hole	Depth	Perservative
S05001-17A		S	9/8/05	1018	(1) LINER	Per Contract	C4436	16.75' - 17.50	Cool 4°C
S05001-17B		S	9/8/05	1019	(1) LINER		C4436	16.0 - 16.75	Cool 4°C
S05001-18		S	9/8/05	1105	(1) ILA		C4434	~~14.75'~~ 15.0' - ~~15.0'~~ 15.6'	Cool 4°C
S05001-18A		S	9/8/05	1105	(1) LINER		C4434	14.25' - 15.0'	
S05001-18B		S	9/8/05	1105	(1) LINER		C4434	13.5' - 14.25'	
					( )				
					( )				
					( )				
					( )				
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					( )				

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☐
List all known wastes.

SPECIAL INSTRUCTIONS Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Dan Young K.J. Young	1200 SEP 13 2005	FM Hall	1200 SEP 13 2005
FM Hall	1400 9-13-04	Michelle Valento Michelle Valento	2:00 9/13/05

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102864

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Collector	Contact/Requestor H. A. SYDNOR	Tel. No. 373-3967 MSIN E6-35 FAX
SAF Number S05-001	Sample Origin C FARM, 200 EAST	Purchase Order/Charge Code 120856 / E510
Project Title 241-C-152 DIVERSION BOX	Logbook # DTS-SAWS-H97	Ice Chest # Temp:
Shipped To (Lab) 325	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. N/A
Protocol RCRA	Data Turnaround PER CONTRACT	Offsite Property No. N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	DEPTH	Perservative
S05001-03		S	7-27-05	0226	(1) 1l Poly	PER CONTRACT	21.5' – 22.1'	Cool 4°
S05001-03A		S		0226	(1) Liner		20.75' – 21.50'	
S05001-03B		S		0226	(1) Liner		20.0' – ~~21.50~~ 20.75'	
S05001-04		S		0604	(1) 1l Poly		24.5' – 25.1'	
S05001-04A		S		0604	(1) Liner		23.75' – 24.50'	
S05001-04B		S		0604	(1) Liner		23.0' – 23.75'	
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POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☐
List all known wastes.

SPECIAL INSTRUCTIONS **Hold Time**

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	F.M. HALL	[signature]	1430 7-27-05		Michelle Valenta / Michelle Valenta		1430 7-27-05
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102863

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Collector D.R. BREWINGTON	Contact/Requestor H.A. SYDNOR	Tel. No. 373-3967 MSIN E6-35 FAX
SAF Number S05-001	Sample Origin C FARM, 200 EAST	Purchase Order/Charge Code 120856 / ES10
Project Title 241-C-152 DIVERSION BOX	Logbook # DTS-SAWS-H97	Ice Chest # SAWS 148 Temp.
Shipped To (Lab) 325	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. N/A
Protocol RCRA	Data Turnaround PER CONTRACT	Offsite Property No. N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	DEPTH	Perservative
S05001-02		S	7-26-05	0222	(1) 1L POLY	PER CONTRACT	11.00' - 11.6'	COOL 4°
S05001-02A		S	↓	↓	(1) LINER	↓	10.25' - 11.00'	↓
S05001-02B		S	↓	↓	(1) LINER	↓	9.5' - 10.25'	↓
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					( )			
					( )			
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					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☐
List all known wastes.

SPECIAL INSTRUCTIONS **Hold Time**

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. Brewington for D.R. Brewington			1430 7-26-05	Michele Valentine Michele Valentine			1430 7-26-05
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

APPENDIX F

SMALL DIAMETER GEOPHYSICAL LOGGING AT THE 241-C-152 DIVERSION BOX

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DTS-RPT-079
Revision 0

SMALL DIAMETER GEOPHYSICAL LOGGING AT THE 241-C-152 DIVERSION BOX

by

Russel Randall, Ph.D.

Three Rivers Scientific
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to

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October 2005

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TERMS

ac	alternating current
BGO	bismuth germanite oxide
CPM	counts per minute
DOE	U.S. Department of Energy
DPM	disintegrations per minute
HPT	health physics technician
KUT	potassium, uranium and thorium
MCA	multi-channel analyzer
NaI	sodium-iodide
PNG	Pacific Northwest Geophysics
RWP	radiological work permit

DTS-RPT-079, Rev. 0

SMALL DIAMETER GEOPHYSICAL LOGGING AT THE 241-C-152 DIVERSION BOX

1.0 INTRODUCTION

To investigate the extent of subsurface contamination at the 241-C-152 Diversion Box, Pacific Northwest Geophysics (PNG) and Three Rivers Scientific provided small diameter (slim hole) logging in support of field activities. Logging surveys were conducted with three detectors: neutron-moisture (moisture gauge), gross gamma, and spectral gamma. The surveys assisted in identifying zones of interest for sample collection and laboratory analysis. This report includes the results of these surveys for the 20 probe holes installed around the investigation site.

Moisture surveys measure the distribution of moisture in the subsurface soils. Previous drilling and sampling programs have shown that contamination from liquid waste is more likely to be present in zones with high moisture content than in zones of low moisture content. The moisture content ranged from less than 5 to over 20 percent volume fraction moisture.

The main gamma-ray emitting constituent of the liquid waste that leaked from the 241-C-152 Diversion Box is Cesium-137. The objective of the gamma survey logs is to identify the presence of Cs-137 at concentrations greater than 10 pCi/g and to highlight high concentration zones that must be avoided for sample collections (radiological work permit [RWP] limiting condition of 100,000 DPM). Rapid scan gamma surveys (4 ft/minute) satisfy the Cs-137 detection threshold and the results are reported as gross gamma logs.

Through selected intervals in two probe holes, spectral gamma ray surveys were collected to identify the concentrations of the naturally occurring radionuclides.

Each logging unit (moisture, gross gamma, and spectral gamma) was calibrated for the probe hole conditions present at the investigation site (see Section 3.0).

2.0 SURVEY RESULTS

Log surveys were recorded from the bottom of the probe hole (maximum survey depth) to the ground surface. Zero depth reference is at ground surface. A daily repeat measurement was acquired in at least one probe hole 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 the results agree within the uncertainty of the measurement counting statistics.

The survey results for each probe hole are presented as a plot in Appendix A. The plots are in numeric order of the probe holes (C4401–C4447). Appendix A also contains a table that summarizes for each probe hole, the survey date, detector, maximum/minimum survey depth, and repeat intervals. Cesium-137 was not detected in any probe hole.

Unfortunately, the rapid scan gamma detector exhibited intermittent noise in the spectra on a few of the probe hole surveys. These data values were masked out in the final presentation and were replaced by an appropriate comment. Repeat logs in the holes were useful to confirm the background radioactive component of the formation. Repeat logs are presented with the main log runs, both agree within counting statistics, and confirm background activity of the subsurface formation.

3.0 GEOPHYSICAL LOGGING SYSTEM

Three small-diameter logging units were deployed to the investigation site. The logging systems were portable units (i.e., mounted on a wagon) powered by a 120 V ac electrical cord connected to the onsite generator. A laptop computer allocated to each logging unit was used to monitor encoder depth positions, control the winch motor, and record detector responses.

The moisture and gross gamma (sodium-iodide [NaI]) detectors are more advanced than the older spectral gamma (bismuth germanite oxide [BGO]) system. The older BGO sonde transmits each detector response as an analog (voltage) pulse through the logging cable to the up-hole amplifier and multi-channel analyzer (MCA).

The more advanced moisture and NaI gamma detectors are connected to their own MCAs that are installed in the small diameter logging sonde. Detector responses are converted to digital format within the logging tool, which significantly improves system stability. These two detectors are interchangeable between the two winch units because digital detector responses are not influenced by up-hole logging equipment (winch motor, depth encoder, etc.)

3.1 NEUTRON-MOISTURE CALIBRATION AND SURVEYS

The neutron-moisture sonde combines the PNG-owned thermal-neutron detector and a DOE-owned sealed neutron source (50 mCi AmBe). The DOE-owned neutron source was used because it was already on the Hanford Site and was managed by the DOE radiation management program. The neutron source is an integral component of a neutron-moisture detector, manufactured by Campbell Pacific Nuclear. The neutron source is identified by the tool serial number (H38068291).

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

Calibration was performed in six borehole calibration models (Meisner and Randall 1995). Three models have 6-in. hole size and three models have 8-in hole size. The moisture content of each model in a set of three borehole models is different (5, 12, or 20 percent by volume). The detector count rate in each of the six borehole calibration models is summarized in Table 1. The calibration certificate is shown in Figure 1.

Table 1. Moisture Calibration Data.

Moisture Content Percent – volume fraction	6-inch Models* (cps)	8-inch Models* (cps)
5% vf	96.2	75.7
12% vf	142.7	106.5
20% vf	179.0	129.7

*Count rates are mean of 10 sample measurements at 60 seconds each.

The probe holes size for this project was 2.51 in. Therefore, the moisture calibration was extrapolated to the correct hole size. The moisture calibration certificate for the 2.51-in. hole size is shown in Figure 2.

The probe hole survey was collected at 1 ft/minute. Processing of the moisture survey data requires that the borehole survey data be normalized to the thickness of the steel casing present in the calibration models (0.325 in.). Given that the probe hole casing thickness is 0.37 in., a correction factor of 1.055 is required to increase (normalize) the observed detector count rate to the conditions of the calibration model (Meisner et al. 1996).

Figure 1. Moisture Calibration Certificate, Hole Size: 6 in. and 8 in.

Certificate of Calibration for
Instrument SD-Moist291-2

June 6, 2005

On June 6, 2005, data were taken in the Moisture models for the SD-Moist291-2 neutron-neutron moisture tool. The neutron source from DOE moisture tool No. H38068291 was used with the passive neutron detector probe from PNG. This calibration is required for the Direct Push logging, and it is funded by subcontract 013661.

Six models were used for moisture calibration, three for 6-in. casing and three for 8-in. casing. Repeated spectra were recorded for each model in order to perform statistical analysis. The observed statistical variation agreed with the theoretically predicted variation (refer to the file Stats-moist.xls for this analysis).

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306, *Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration*, Rev. 0. The regression function used is a power law form and defined by:

$$V = a \cdot CR^{\alpha}$$

Where V is the formation moisture content in volume fraction water in vf units. One vf unit is 1% by volume water. The coefficients a and α are fit coefficients, and CR is the dead time corrected observed total count rate, (c/s).

6-in. casing	**8-in. casing**
a = .0002069	**a = .00008067**
α = 2.210	**α = 2.550**

The undersigned certifies that the data archived in data file "SD-Moist291_2005.zip" were collected and evaluated in accordance with WHC-SD-EN-TI-306 and that the above-stated calibration coefficients are correct and applicable for tool SD-Moist291-2, effective June 6, 2005.

Signature: Date:

/s/ Russel Randall, Ph.D. July 1, 2005
Three Rivers Scientific

Figure 2. Moisture Calibration Certificate, Hole Size 2.51 in.

Moisture Calibration Extrapolation to 2.51-In. Borehole
Instrument SD-Moist291-2

June 6, 2005

Moisture calibration was performed in the Hanford physical models. These standards have 6-in. and 8-in. inside diameter (ID) casings. The Tank Farm Direct Push borehole is cased with a 2.51-in. outside diameter (OD) iron casing. The calibration for the moisture response is a function of borehole diameter.

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306, *Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration*, Rev. 0. The regression function used is a power law form and defined by:

$$V = a \cdot CR^{\alpha}$$

Where V is the formation moisture content in volume fraction water in vf units. One vf unit is 1% by volume water. The coefficients a and α are fit coefficients, and CR is the dead time corrected observed total count rate, (c/s). A linear extrapolation was applied to determine the 2.51-in. borehole diameter.

2.51-in. borehole
a = .000343
α = 1.951

The undersigned certifies that the analysis files are archived in the file "SD-Moist291_2005.zip" which was evaluated in accordance with DTS procedures and that the above-stated calibration coefficients are correct and applicable for tool SD-Moist291-2, effective June 6, 2005.

Signature: Date:

/s/ Russel Randall, Ph.D. July 12, 2005
Three Rivers Scientific

3.2 GROSS GAMMA CALIBRATION AND SURVEYS

The gross gamma scintillation detector is a NaI crystal. The NaI crystal (1 in. long) is hydroscopic and is enclosed in a hermetically sealed can (1-in. diameter) to maintain its integrity. Other components of the gamma detector are the high-voltage supply, photo-multiplier tube, pre-amp, and MCA. The settings of the detector components are fixed (i.e., set up during assembly, prior to calibration) and are not adjustable by the field-logging engineer. The detector gain and lower threshold are set to record gamma ray activity with energies between 100 and 3,000 keV. By comparison, the highest gamma ray from naturally occurring radionuclides is from thorium-232 and it occurs at 2,614 keV. Coleman lantern mantles containing thorium-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 NaI detector is calibrated in Gross gamma borehole calibration models located at the U.S. DOE Hanford Site near Richland, Washington. Calibration was performed in the two most appropriate (lowest concentration) gross gamma calibration zones (SBA and SBU). The detector was covered with a 4-ft long section of the probe/drill tubing (0.37-in. thick). The calibration data are summarized in Table 2. The calibration units are pCi/g of equivalent Radium-226 (eRa-226). See Figure 3 for the calibration certificate.

Table 2. Gross Gamma Calibration Data.

Calibration Model	Concentration eRa-226 (pCi/g)	Gross Gamma Response[1] (cps)	Dead Time Corrected Gross Gamma Count-Rate[2] (cps)
SBA	61.2	476.0	477.8
SBU	186	1,396.6	1,412.7

[1]Count rates are mean of 10 sample measurements at 100 seconds each.
[2]NaI Detector system dead time is 8.15 microseconds.

The NaI gamma surveys were logged at 4 ft/minute. A spectrum of 256 channels was collected each 0.5 ft from the bottom of the probe hole to the surface. The spectra were recorded in Ortec PHA "-.chn" format with one spectra per file. Detector count rates were dead time corrected and the gamma survey data was processed as gross gamma response to determine the concentration of equivalent Radium-226 (eRa-226) in pCi/g.

The dead time correction is a non-paralyzable 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 ε is the dead time factor of 8.15μs (Randall and Price 2005).

Also, the NaI gross gamma detector was calibrated for eCs-137 (pCi/g) in addition to the primary calibration for eRa-226. The calibration for eCs-137 was to identify high concentration zones that must be avoided for sample collection (i.e., RWP limiting condition of 100,000 DPM). Calibration for eCs-137 was performed in Hanford well 299-W10-72 (a new standard proposed by Stoller Corporation's logging group). The distribution of Cs-137 varied along the depth of the well; therefore, the concentrations were established by two High-Purity Germanium (HPGe) detectors (the 70% tool and the High Rate tool). The conversion factor from detector count rate (cps) to eCs-137 is 0.373 (pCi/g per cps) for casing thickness 0.40 in.

Figure 3. Gross Gamma Calibration Certificate.

Certificate of Calibration
SDGR-4N4-NaI1
July 7, 2005

Data were taken at the Hanford KUT models on July 7, 2005. SDGR-4N4-NaI1 is the designated Scintillator tool. Two models were used for the gross gamma calibration (SBU and SBA). Ten spectra were recorded for each model in order to perform statistical analysis. The observed deviations were seen to be near the theoretically predicted variation, for this analysis, refer to the compressed files: Gross.xls.

This calibration is required for the Direct Push logging, and it is funded by subcontract 013661.

The instrument was covered with 0.37-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,* Rev. 0. The gross gamma calibration for equivalent Ra-226 in pCi/g is a regression function and is generally defined by:

$$Ra = a*GR + b$$

Where Ra is the Eq. Ra-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:

$$a = .131 \ \ \text{Eq.Ra-226 pCi/g / (c/s)}$$
$$b \equiv 0$$

Digital files condensed as Cal_SD-GR-02_2005-v0.zip. This compressed file contains:

- Calibration raw data
- MathCad data analysis files
- Spreadsheet data formatting

The undersigned certifies that the data archived in the file "Cal_SD-GR-02_2005-v0.zip" were collected and evaluated in accordance with WHC-SD-EN-TI-293, and that the above-stated calibration coefficients are correct and applicable for the tool SDGR-4N4-NaI1 effective July 7, 2005.

Signature: Date:

/s/ Russel Randall, Ph.D. July 8, 2005
Three Rivers Scientific

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The NaI gamma detector upper limit for identifying samples that will not exceed the RWP with the HPT survey instruments is estimated as follows:

Given:

a. The background activity 50 CPM = 500 DPM with the HPT survey meter (in a zone with no contamination at the surface).

b. The RWP limit is 100,000 DPM = 10,000 CPM with the HPT survey meter (200 times above background of 50 CPM).

c. The background activity is 25 cps with the 1-in. x 1-in. NaI Gamma detector in the 0.37-in. thick steel probe-hole casing.

Therefore: The suggested limit on the NaI gamma detector for avoiding samples that exceed 100,000 DPM is 25 * 200 = 5000 cps (dead time corrected) or 4,800 cps (observed) count rate (conservative upper limit). Using the eCs-137 conversion factor (0.373 pCi/g per cps) this translates to about 1,900 pCi/g of Cs-137.

3.3 SPECTRAL GAMMA CALIBRATION AND SURVEYS

Calibration of the BGO logging system was performed in the four spectral gamma borehole calibration models located at the U.S. DOE Hanford Site near Richland, Washington and according to Hanford Site procedures for scintillation type spectral gamma ray borehole detectors (Randall and Stromswold 1995). The four calibration models contain elevated concentrations of the naturally occurring radionuclides (potassium, uranium or radium in secular equilibrium with uranium, and thorium, aka KUT). The radionuclide concentrations are traceable to National Institute of Standards and Technology (NIST) standards (Steele and George 1986). Table 3 lists the radionuclide concentration in each of the gamma calibration models. The uncertainty is quoted at the 2-sigma (95%) confidence level.

Table 3. Hanford Calibration Model Values for KUT.

Model	^{40}K Concentration (pCi/g)	Ra-226 Concentration (pCi/g)	Th-232 Concentration (pCi/g)
SBK	53.50 ± 1.67	1.16 ± 0.11	0.11 ± 0.02
SBU	10.72 ± 0.84	190.52 ± 5.81	0.66 ± 0.06
SBT	10.63 ± 1.34	10.02 ± 0.48	58.11 ± 1.44
SBM	41.78 ± 1.84	125.79 ± 4.00	39.12 ± 1.07

Calibration was performed with a section of the steel drill tubing (4 ft long) 0.37-in. thick (2.5-in. OD) installed over detector (4 in. long) during calibration measurements. Calibration with the

casing installed over the detector is more rigorous than calibration with open hole and applying casing correction to the probe hole survey to correct for the presence of casing. See Figure 4 for the spectral gamma Calibration Certificate.

During logging the gamma peak at 1,461 keV from potassium (K-40) is almost always present as the dominant peak in each spectra and is used to monitor for spectra gain changes. During data processing the spectra gain is adjusted to track the reference gamma peak.

Borehole survey spectra (200 seconds each) were measured each 0.5 ft between the selected depth intervals in two probe holes (C4409 and C4417) in move-stop-acquire logging mode and the results are presented in Appendix B.

Figure 4. Spectral Gamma Calibration Certificate.

Certificate of Calibration
SDGR.02

July 7, 2005

Data were taken at the Hanford KUT models on July 7, 2005. SDGR.02 is the designated Scintillator tool. Four models were used for Spectral KUT calibration. Ten spectra were recorded for each model in order to perform statistical analysis. The observed statistical deviations were seen to be within the theoretically predicted variation, for this analysis, refer to the compressed file: AveOut.XLS. The instrument was covered with 0.37-in. wall-thickness probe tubing.

This calibration is required for the Direct Push logging, and it is funded by subcontract 013661.

The algorithm described in WHC-SD-EN-TI-293, *Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models,* Rev. 0, determines the coefficient analysis. Three energy windows are used for each potassium, uranium and thorium (KUT), and these are:

K: 1320-1575 keV **U: 1650-2390 keV** **T: 2475-2765 keV**

The concentration for each of the three elements is a linear combination of the count rates in the three windows. The resulting coefficients for each of the three elements are:

Concentration-K =	**3.472*K**	**-2.916*U**	**2.146*T**
Concentration-U =	**-0.0086*K**	**1.071*U**	**-1.931*T**
Concentration-T =	**-0.00099*K**	**-0.035*U**	**1.433*T**

Where K, U and T are the count rates (c/s) in the listed energy windows and the resulting concentration values are in pCi/g.

Digital files condensed as Cal_SD-GR-02_2005-v0.zip. This compressed file contains:

- Calibration raw data
- MathCad data analysis files
- Spreadsheet data formatting

The undersigned certifies that the data archived in the file "Cal_SD-GR-02_2005-v0.zip" were collected and evaluated in accordance with WHC-SD-EN-TI-293, and that the above-stated calibration coefficients are correct and applicable for the tool SDGR.02 effective July 7, 2005.

Signature: Date:

/s/ Russel Randall, Ph.D. September 8, 2005
Three Rivers Scientific

4.0 CONCLUSION

Neutron-Moisture and Passive Gross Gamma survey logs were collected in 20 probe holes installed around the 241-C-152 Diversion Box. All probe holes were pushed to their target depth, none were aborted because of refusal to advance. Nine of the probe holes were pushed to approximately 30 ft in depth, the remaining eleven holes were pushed to approximately 60 ft in depth.

The moisture surveys identified several zones typically above 30 ft with moisture content greater then 10 %vf, many were very thin zones with moisture content greater than 20 %vf. The moisture content below 30 ft is typically less than 8 %vf, except for one zone in C4431 at 37 ft that approaches 9 %vf.

The rapid-scan gamma surveys encountered only background activity from the natural radionuclides. No surveys encountered Cs-137 or any other anthropogenic radionuclide at concentrations approaching the targeted minimum detection threshold of 10 pCi/g.

Spectral gamma surveys were acquired in selected depth intervals in two probe holes (C4409 and C4417). The survey depth interval was selected to span a transition in the gamma response and moisture content. Changes in concentration of potassium and thorium were measured with each survey. Unfortunately, the variations in concentration of uranium in the formation are less than the precision of the logging measurement.

5.0 REFERENCES

Knoll, G., 1979, *Radiation Detection and Measurement*, John Wiley & Sons, Inc. (ISBN 0-471-49545-X).

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Randall, Russel R., Ph.D. and David C. Stromswold, Ph.D., 1995, *Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models*, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX A

MOISTURE AND GROSS GAMMA SURVEYS

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A1.0 MOISTURE AND GROSS GAMMA SURVEYS

Moisture and Gross Gamma Survey Plots follow for the 20 probe holes installed around the 241-C-152 Diversion Box. The gamma survey results are plotted with the scale of 0-25 pCi/g for some probe holes and the scale is 1-26 pCi/g for other probe holes. The scale was changed (adjusted) to prevent confusion from overlap with moisture results.

Table A-1. Probe Hole Survey Summary.

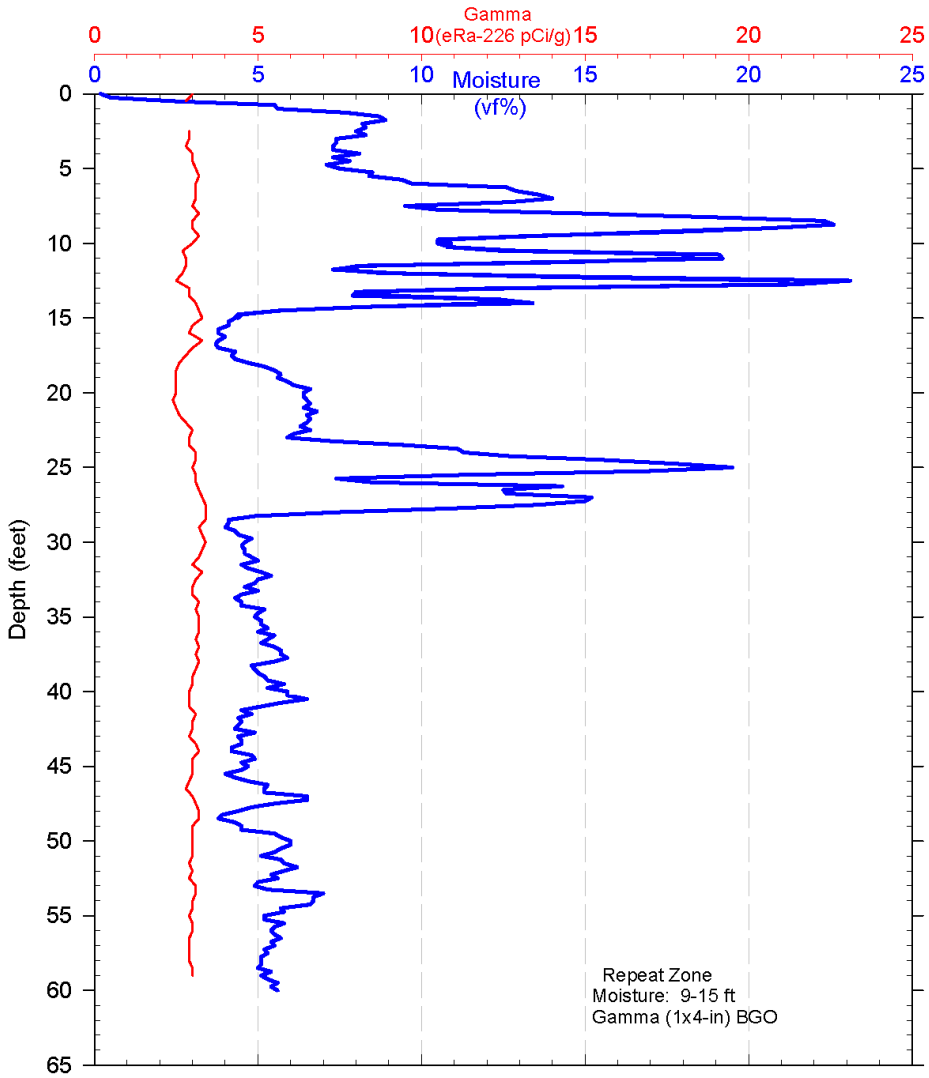
Probe Hole	Log Date	Detector	Max Depth (ft)	Min Depth (ft)	Repeat Zone(s) (ft)	Comment
C4401	11/1/2004	BGO Gamma	60	0		
C4401	11/1/2004	Moisture	60	0		
C4403	7/7/2005	Moisture	58.6	0		
C4403	7/14/2005	Gross Gamma	58.7	1	38-35	
C4405	7/7/2005	Moisture	30.4	0		Depth increment 0.5 ft
C4405	7/11/2005	Moisture	30.2	0.25		Depth increment 0.25 ft
C4405	7/14/2005	Gross Gamma	31	1	14-11	
C4407	7/12/2005	Moisture	59.2	0.25		
C4407	7/14/2005	Gross Gamma	58.7	1	13-9	
C4409	7/12/2005	Gross Gamma	30.7	1		
C4409	7/12/2005	Moisture	30.7	0.25	26-22	
C4409	7/25/2005	Spectral Gamma	30	21	23.5-25	
C4411	7/14/2005	Gross Gamma	66	1	26-20	
C4411	7/15/2005	Moisture	66.2	1	15-9	
C4413	7/15/2005	Gross Gamma	30.4	0.5	16-8	
C4413	7/15/2005	Moisture	30.5	1	16-11	
C4415	7/15/2005	Gross Gamma	58.3	1	32-28	
C4415	7/19/2005	Moisture	58.1	1	17-13	
C4417	7/15/2005	Gross Gamma	58	1	20-14	
C4417	7/19/2005	Moisture	58.6	1	19-14	
C4417	7/26/2005	Spectral Gamma	20	14	16.5-15.5	
C4419	7/19/2005	Gross Gamma	57.5	1	35-30	
C4419	7/21/2005	Moisture	57.5	1	19-14	
C4421	7/19/2005	Gross Gamma	58.1	1	22-18,25-12	
C4421	7/21/2005	Moisture	58	15		
C4421	7/22/2005	Moisture	21	0	9-5.5	Complete Survey (next day)
C4425	8/18/2005	Gross Gamma	30	0.5	10.5-7	
C4425	8/19/2005	Moisture	30	0.5	8.5-5.5	
C4427	8/24/2005	Gross Gamma	32	0.5		Intermittent Noise
C4427	8/29/2005	Gross Gamma	32	0.5	32-22	Intermittent Noise
C4427	8/25/2005	Moisture	32	0.5		
C4429	8/16/2005	Moisture	58	0.5	5.5-3.5	
C4429	8/17/2005	Gross Gamma	58	0.5		
C4431	8/25/2005	Moisture	59	0.5	8.5-4	
C4431	8/29/2005	Gross Gamma	59	0.5	26-20	
C4433	8/16/2005	Moisture	31	0.5	13.5-11	
C4433	8/18/2005	Gross Gamma	32	0.5	18.5-14	
C4435	8/18/2005	Gross Gamma	32	0.5	19.5-14	
C4435	8/19/2005	Moisture	32	0.5	14.25-10.75	
C4437	8/17/2005	Moisture	59	9.5		
C4437	8/19/2005	Moisture	13.25	0.5		
C4437	8/18/2005	Gross Gamma	59	0.5	18.5-12	
C4439	8/17/2005	Moisture	32	0.5	19-16	
C4439	8/18/2005	Gross Gamma	32	0.5	20-10	
C4447	8/24/2005	Gross Gamma	27	0.5	27-1, 27-1, 27-1	Intermittent Noise
C4447	8/24/2005	Gross Gamma	23	0.5	23-0.5	Intermittent Noise
C4447	8/29/2005	Gross Gamma	27	0.5	15-5, 20-0.5	
C4447	8/25/2005	Moisture	27	0.5	11-5	

Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4401

Log Date: Nov 2004
Depth Ref: Ground Level

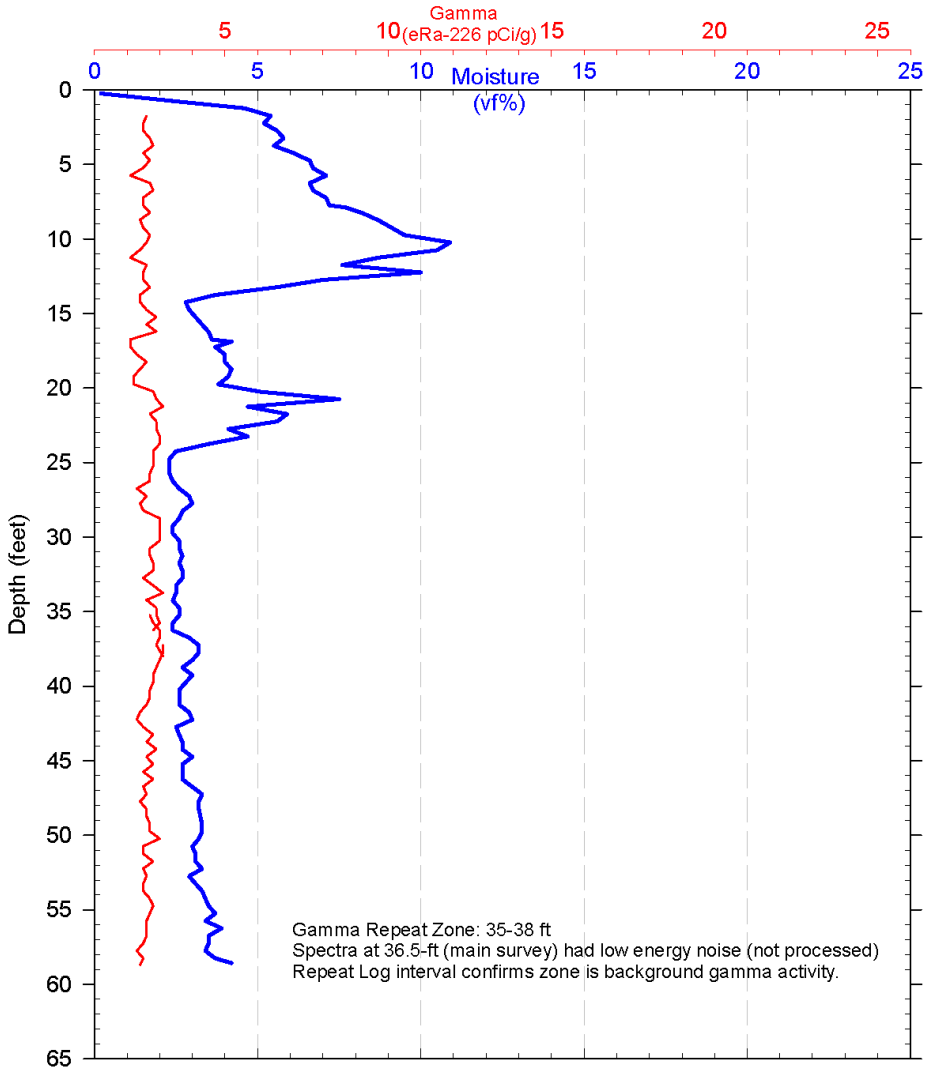


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4403

Log Date : July 2005
Depth Ref: Ground Level

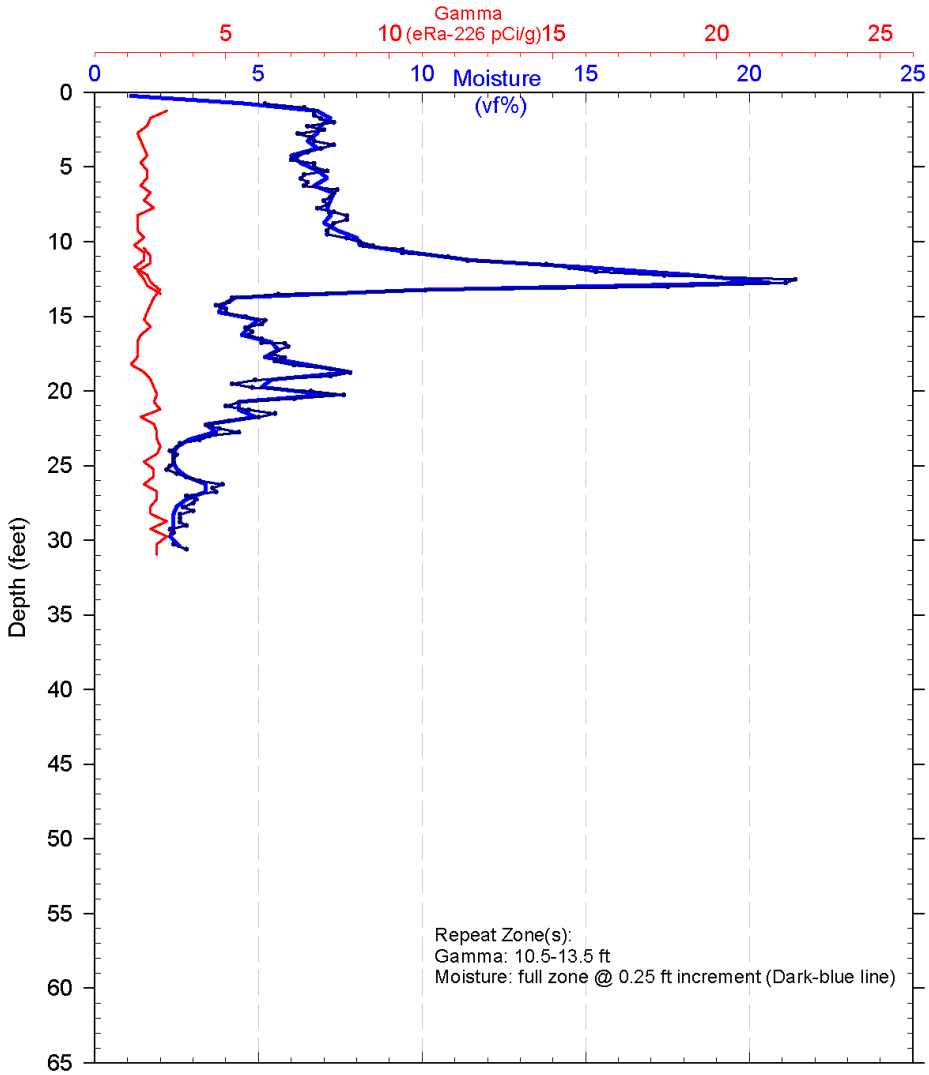


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4405

Log Date : July 2005
Depth Ref: Ground Level

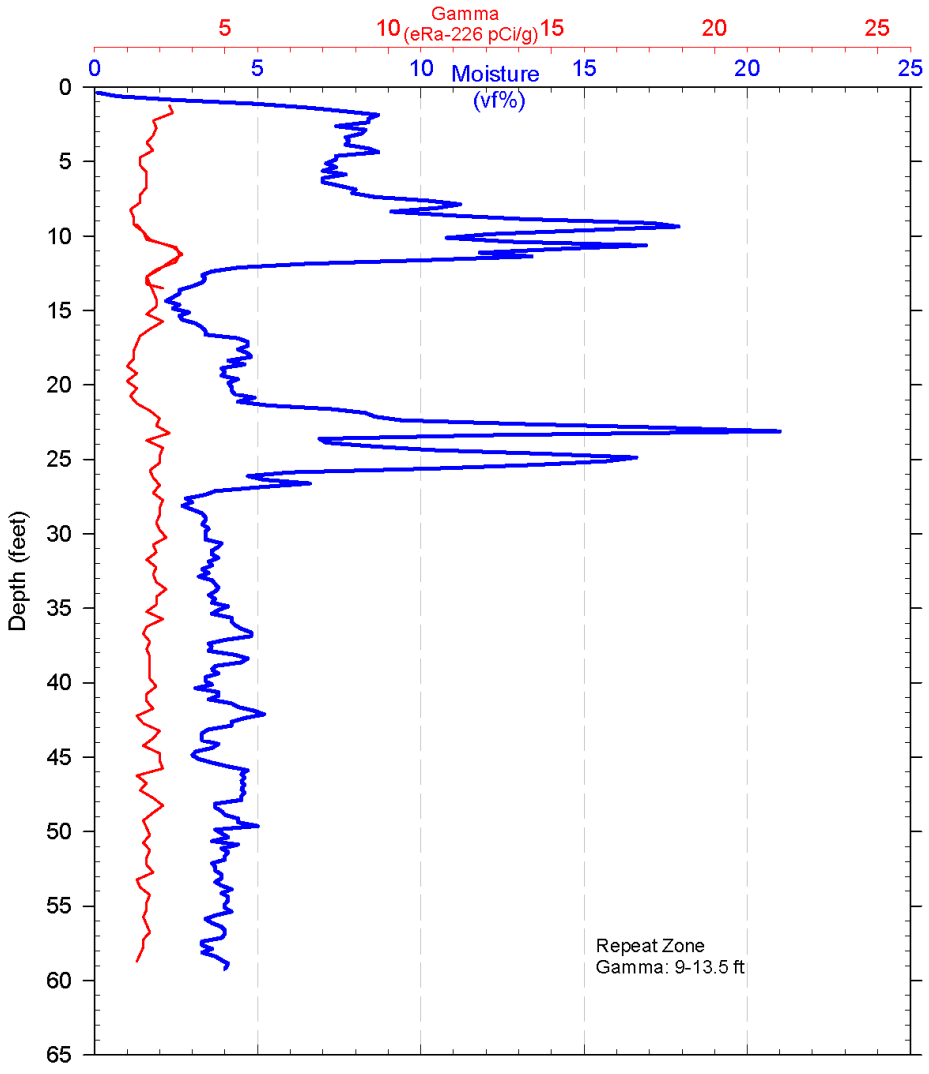


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4407

Log Date : July 2005
Depth Ref: Ground Level

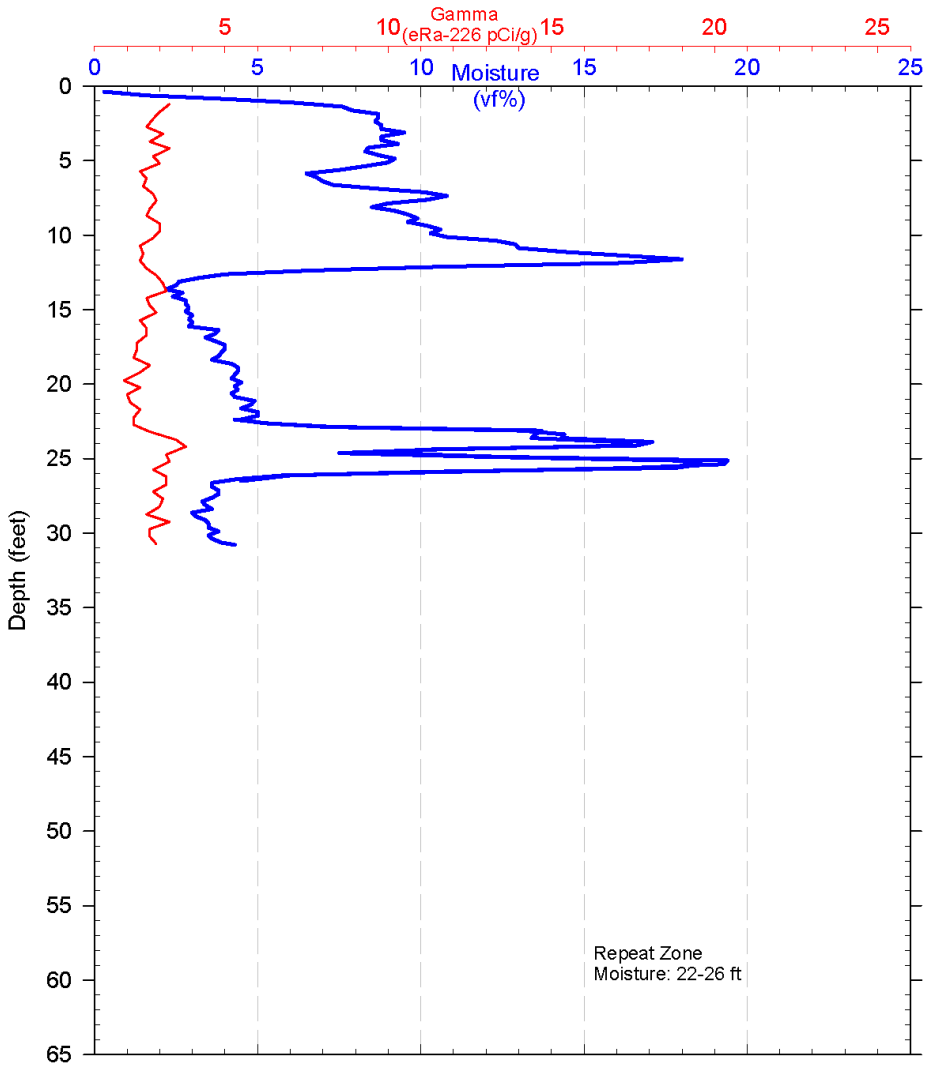


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4409

Log Date : July 2005
Depth Ref: Ground Level

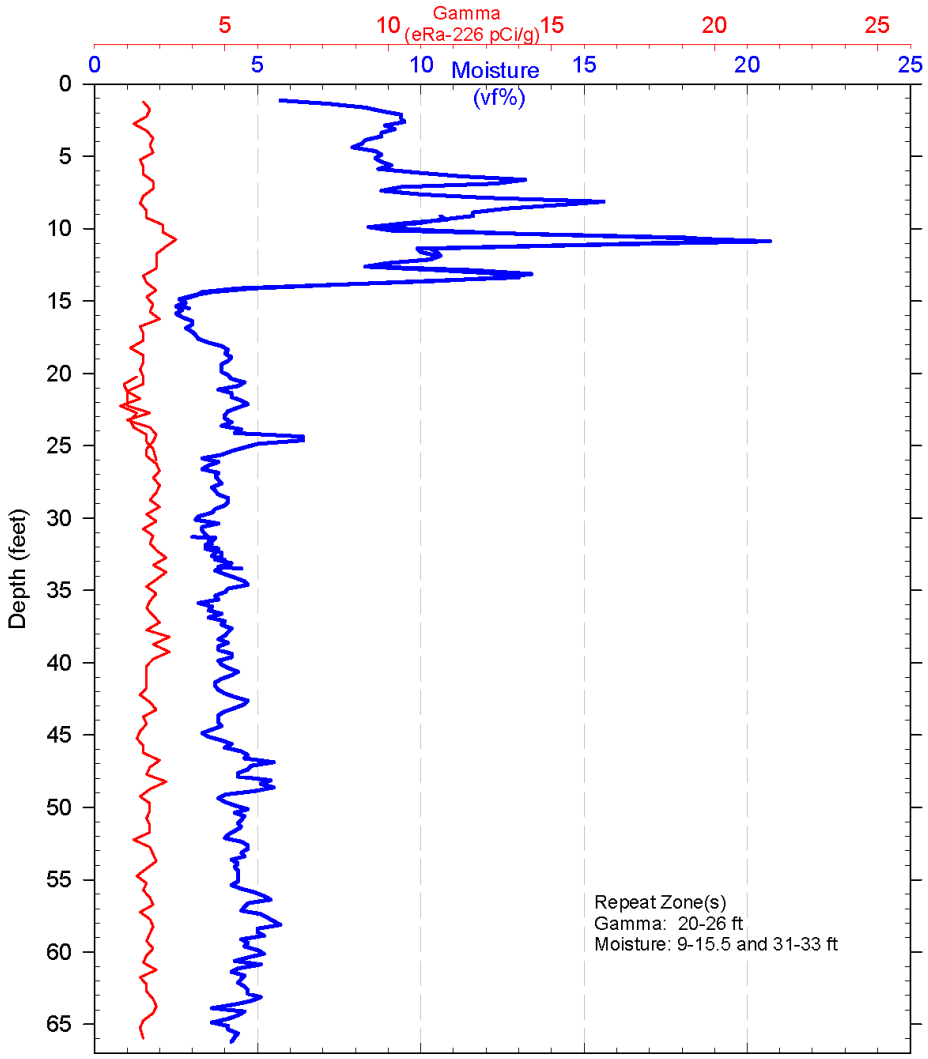


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4411

Log Date : July 2005
Depth Ref: Ground Level

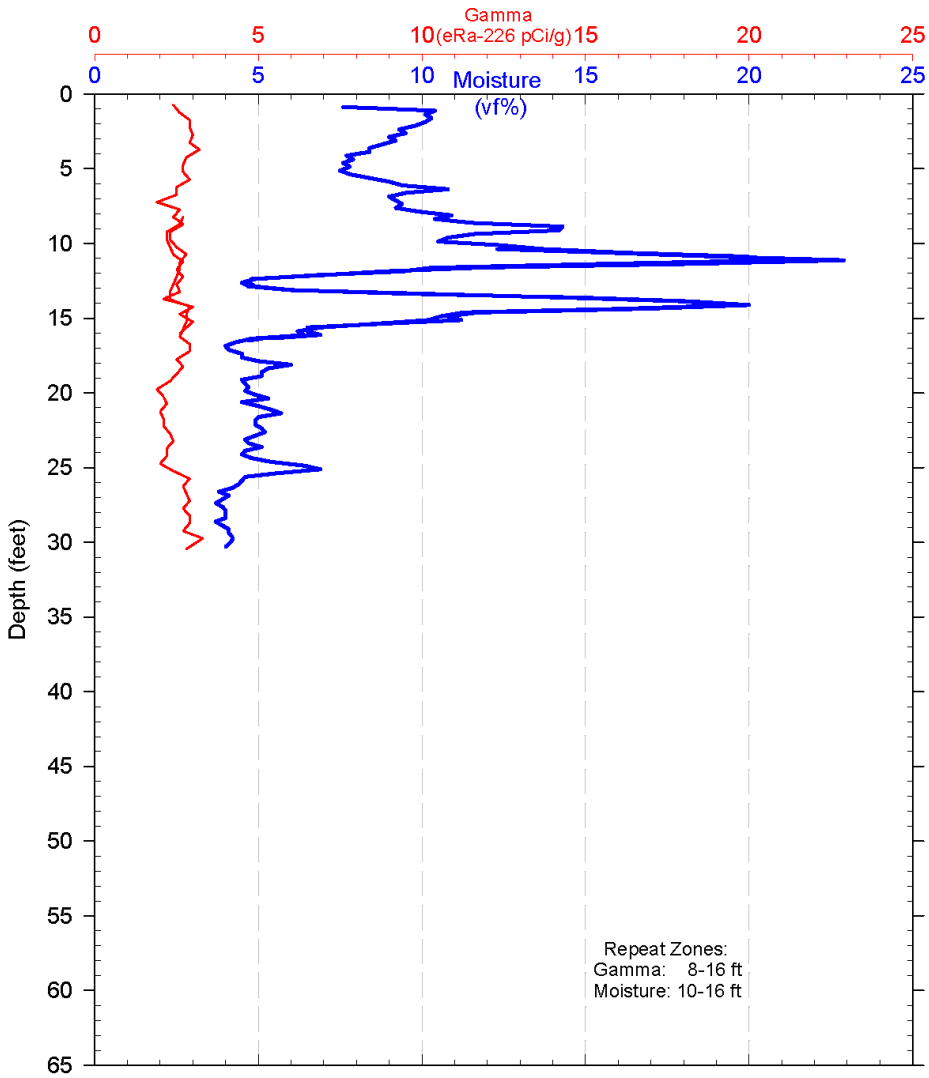


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4413

Log Date : July 2005
Depth Ref: Ground Level

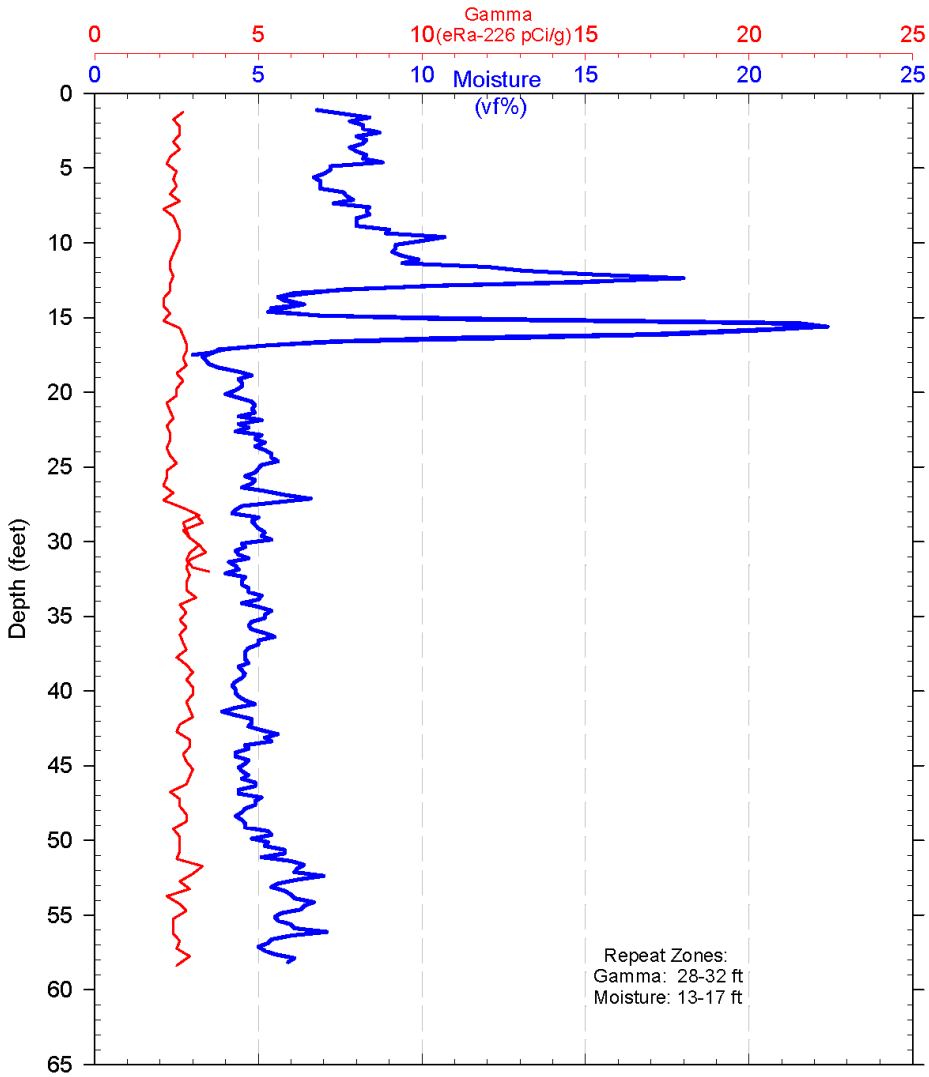


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4415

Log Date : July 2005
Depth Ref: Ground Level

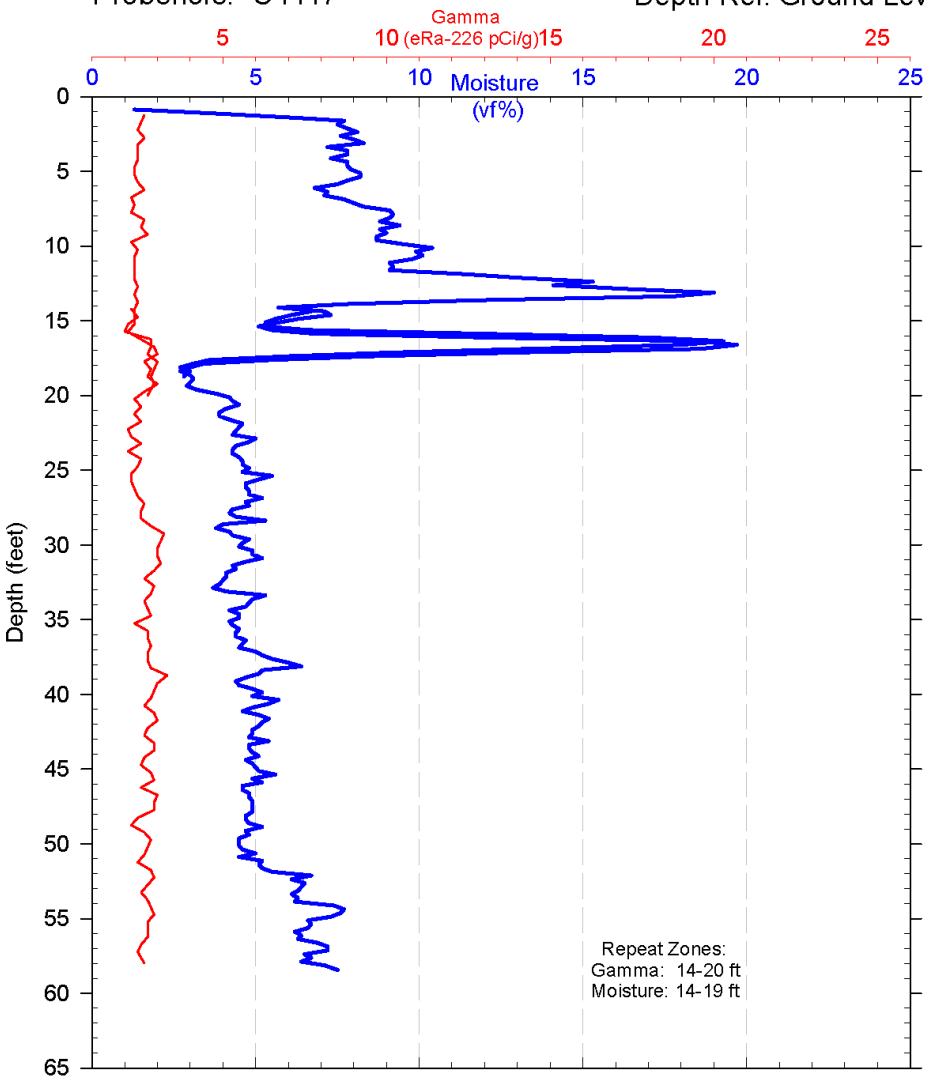


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4417

Log Date : July 2005
Depth Ref: Ground Level

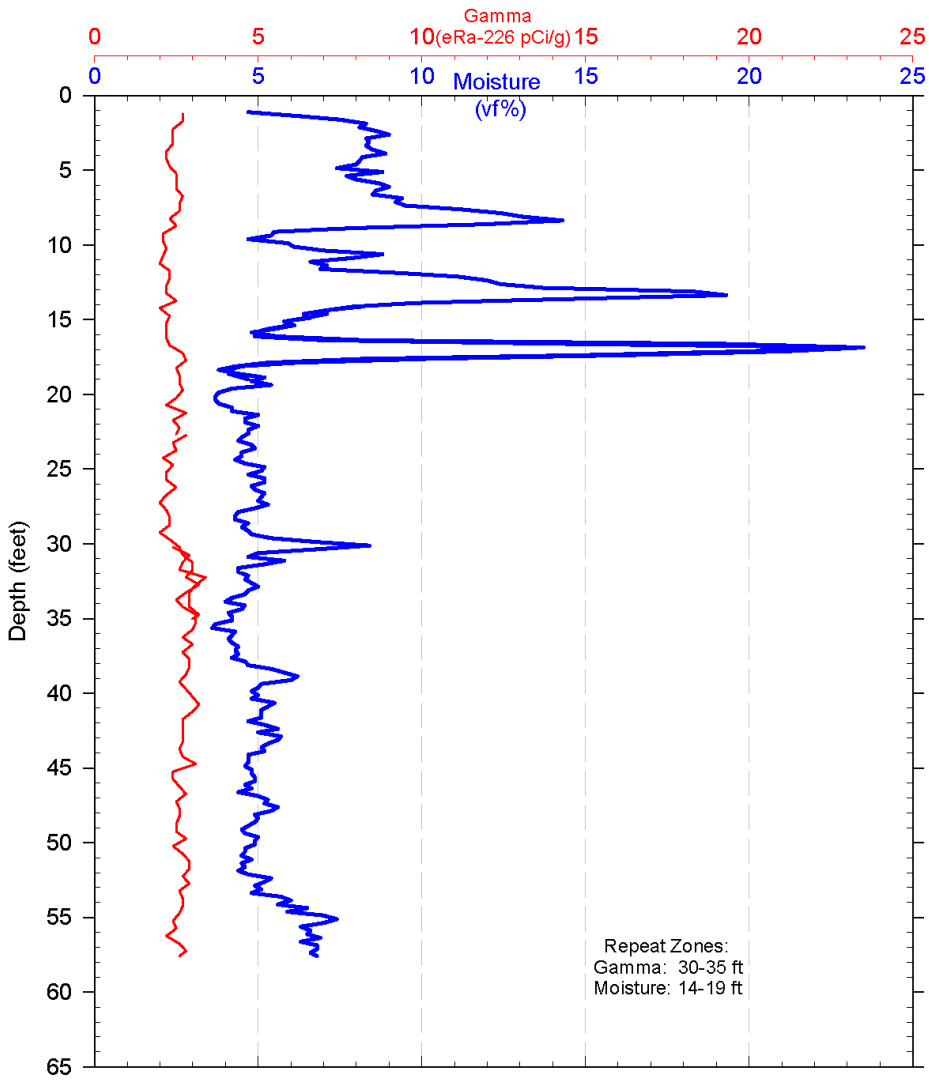


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4419

Log Date : July 2005
Depth Ref: Ground Level

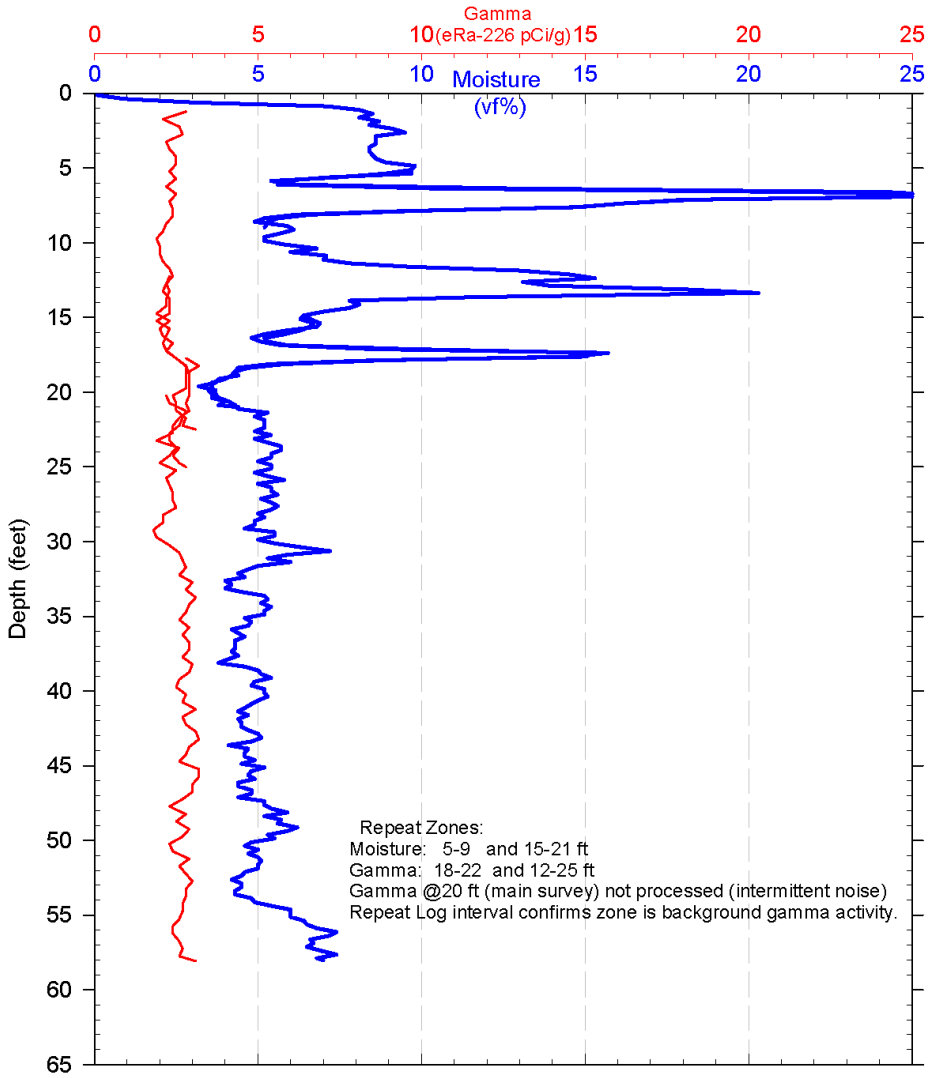


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4421

Log Date : July 2005
Depth Ref: Ground Level

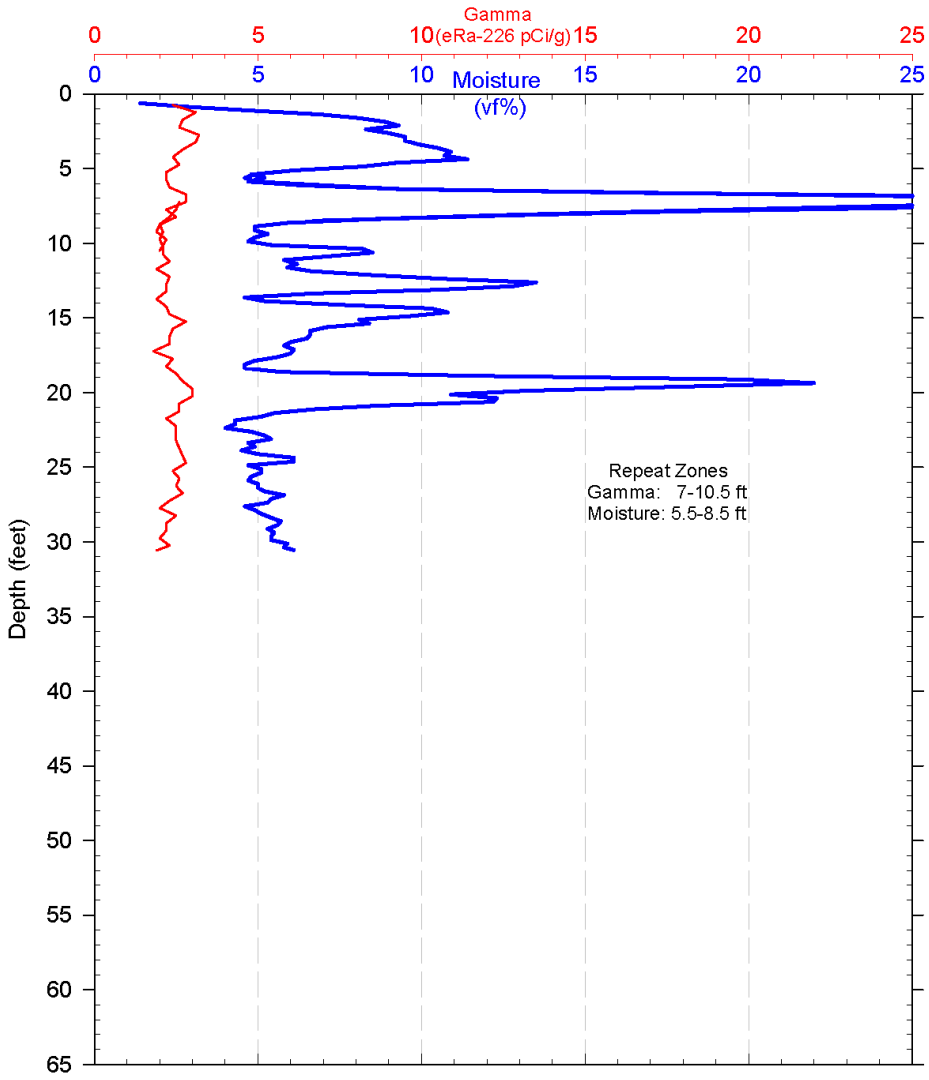


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4425

Log Date: August 2005
Depth Ref: Ground Level

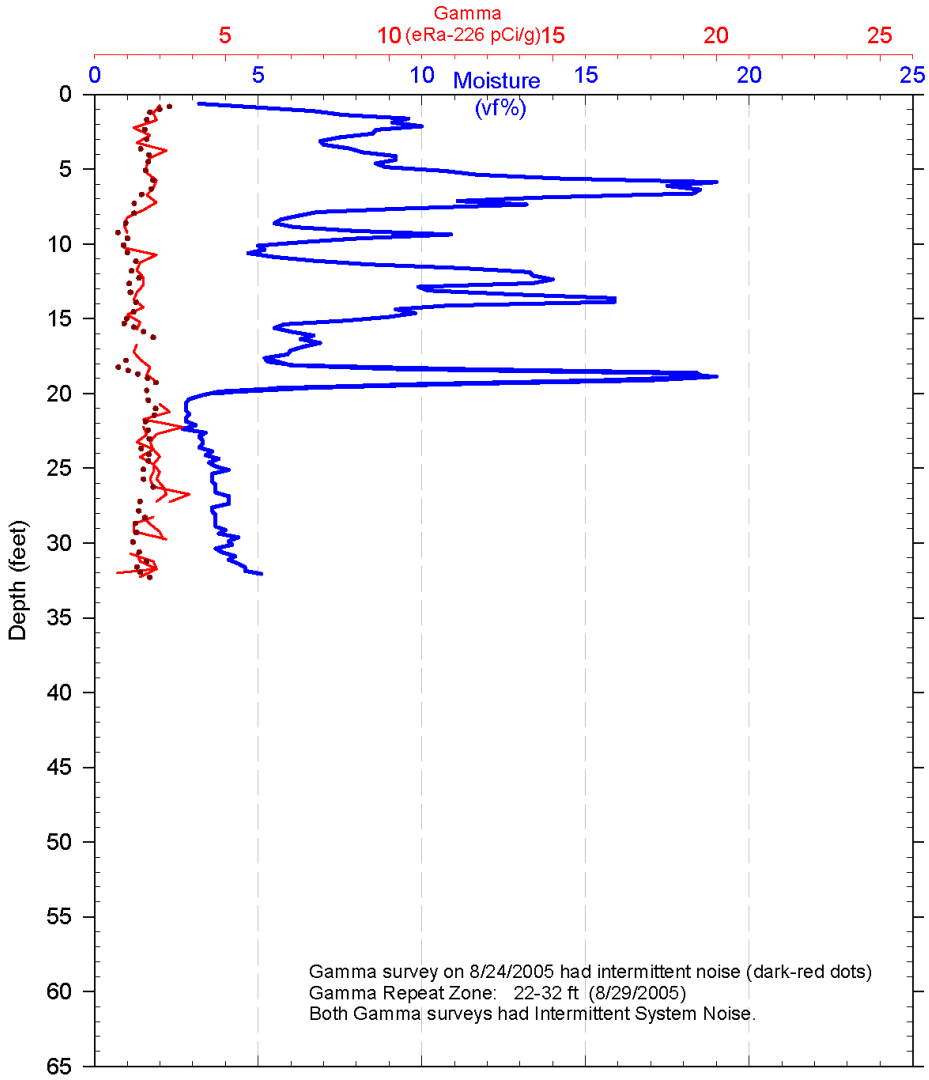


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4427

Log Date: August 2005
Depth Ref: Ground Level

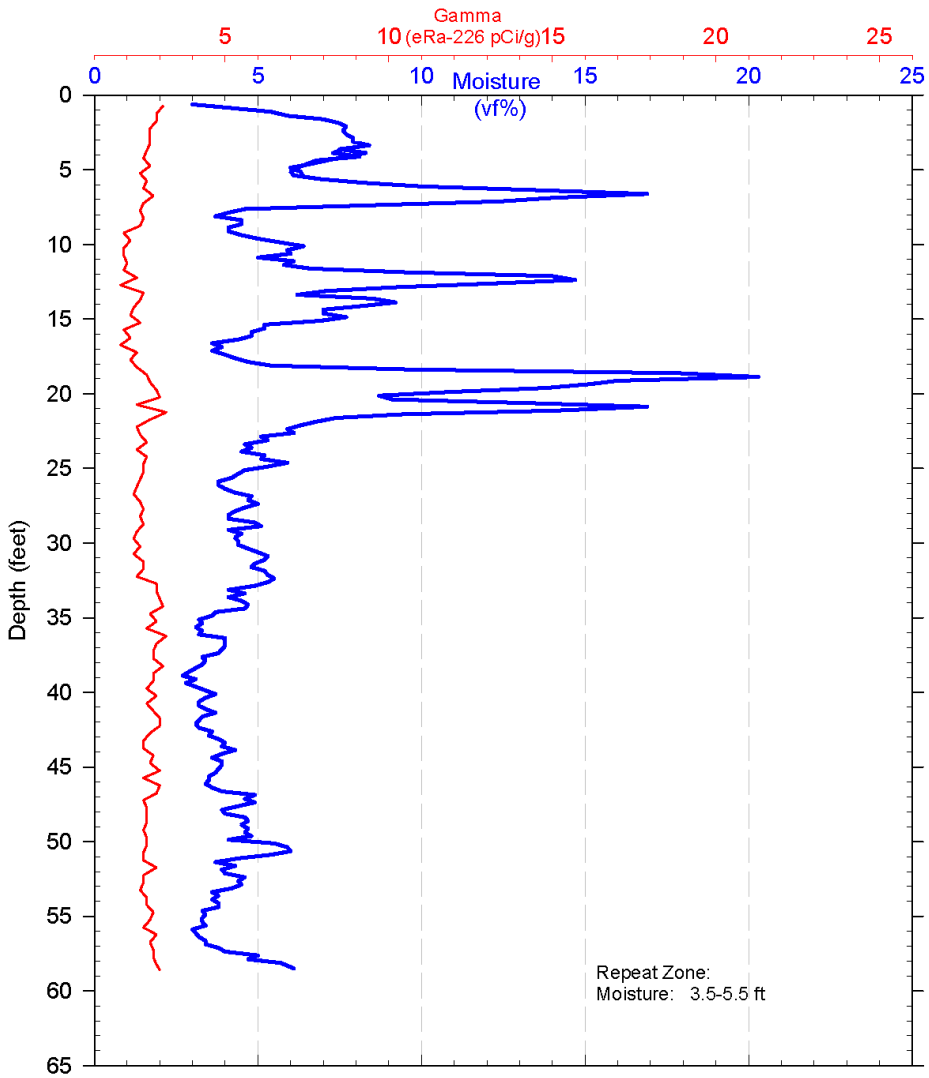


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4429

Log Date: August 2005
Depth Ref: Ground Level

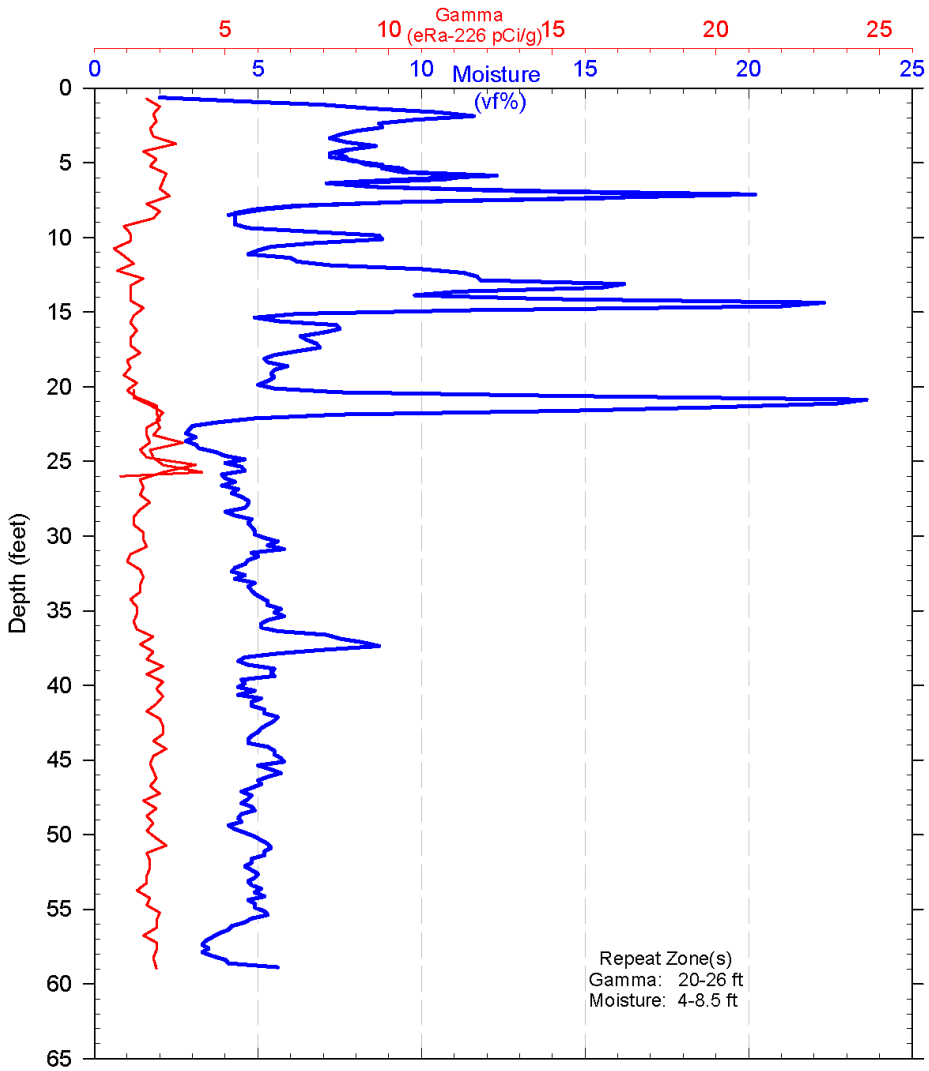


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4431

Log Date: August 2005
Depth Ref: Ground Level

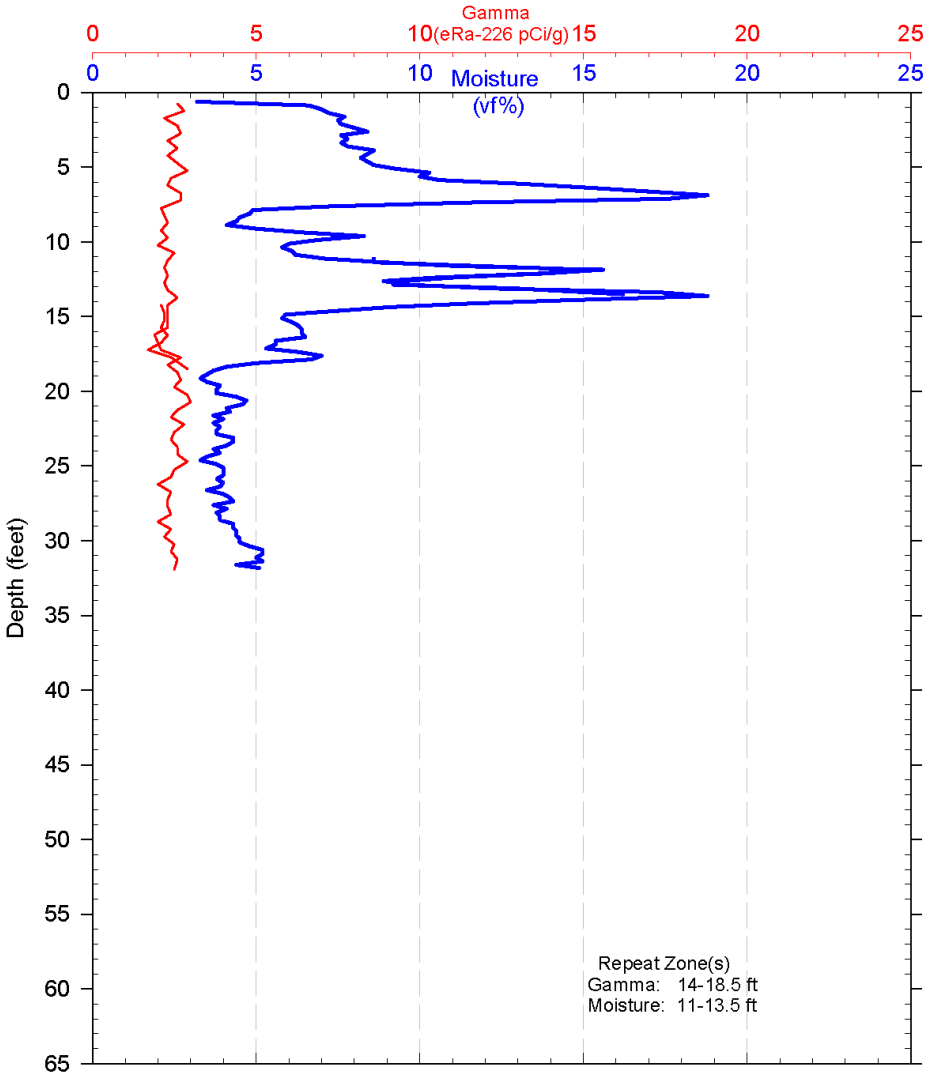


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4433

Log Date: August 2005
Depth Ref: Ground Level

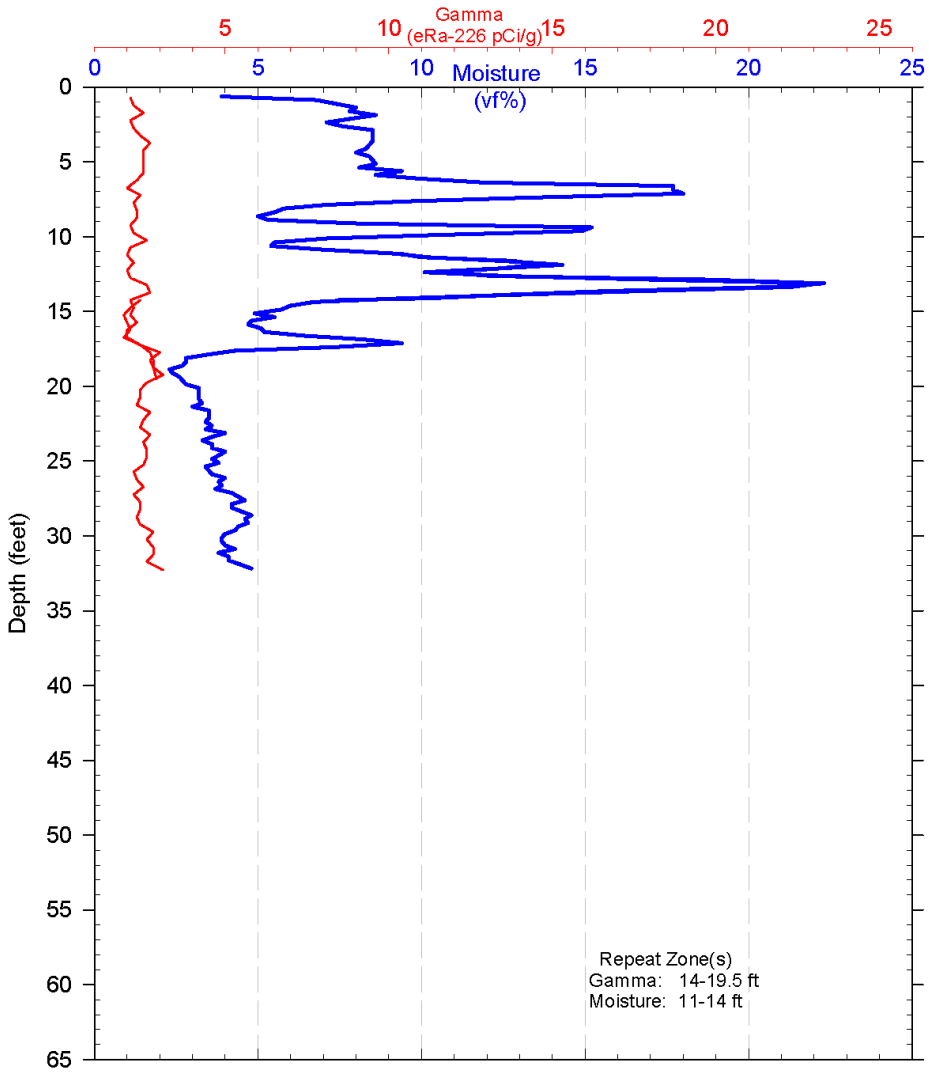


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4435

Log Date: August 2005
Depth Ref: Ground Level

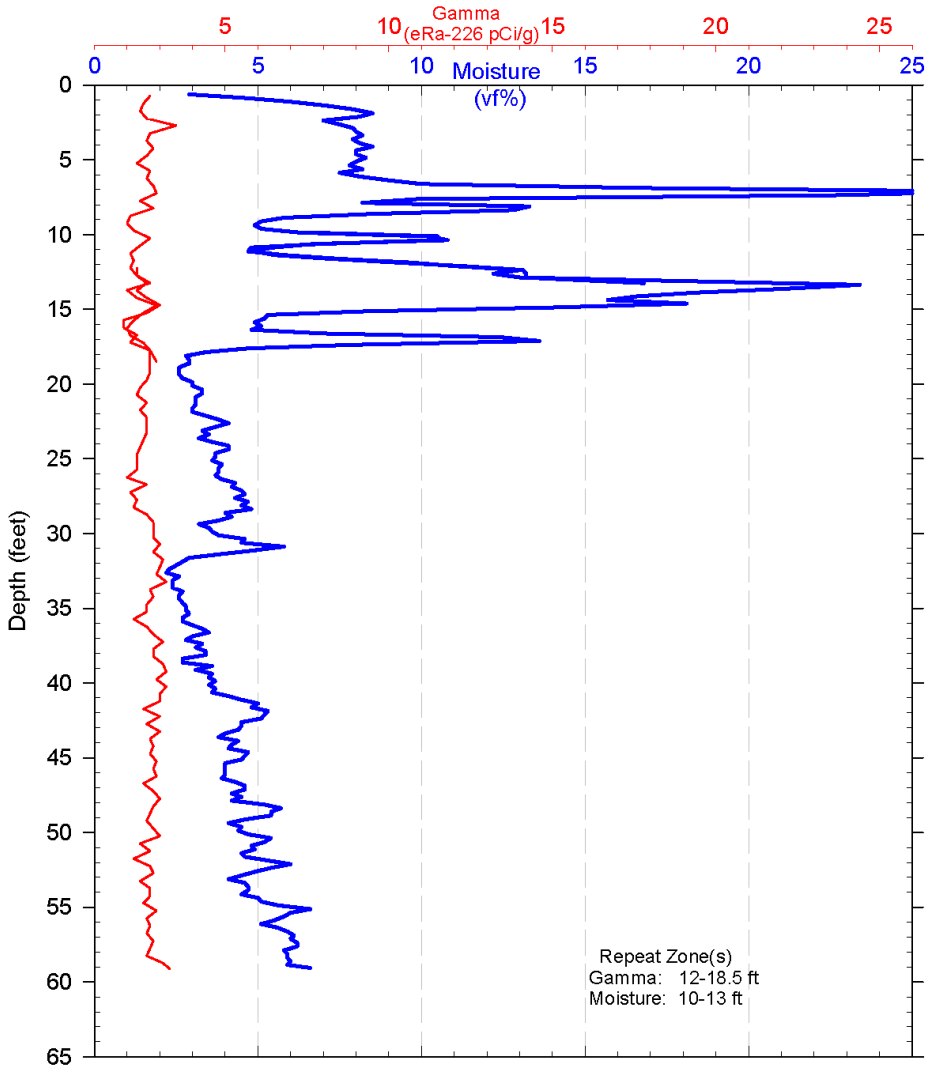


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4437

Log Date: August 2005
Depth Ref: Ground Level

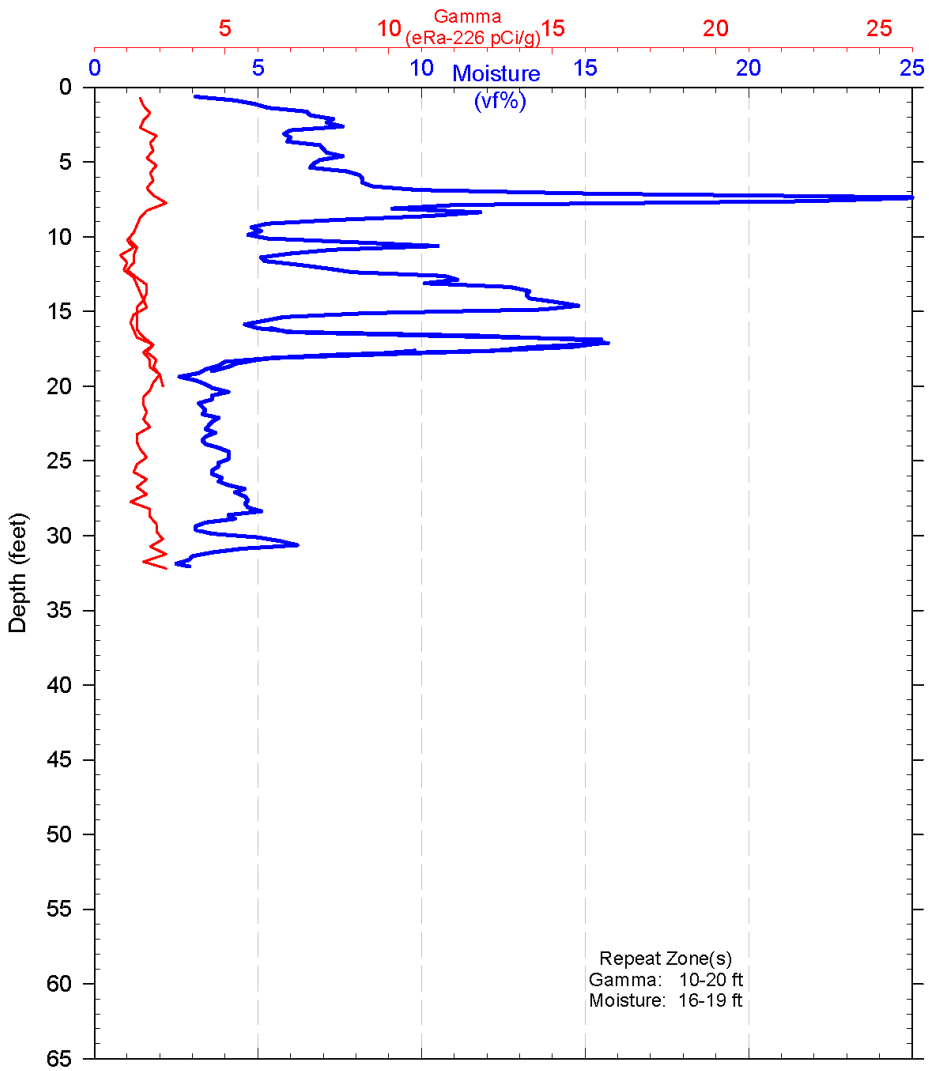


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4439

Log Date: August 2005
Depth Ref: Ground Level

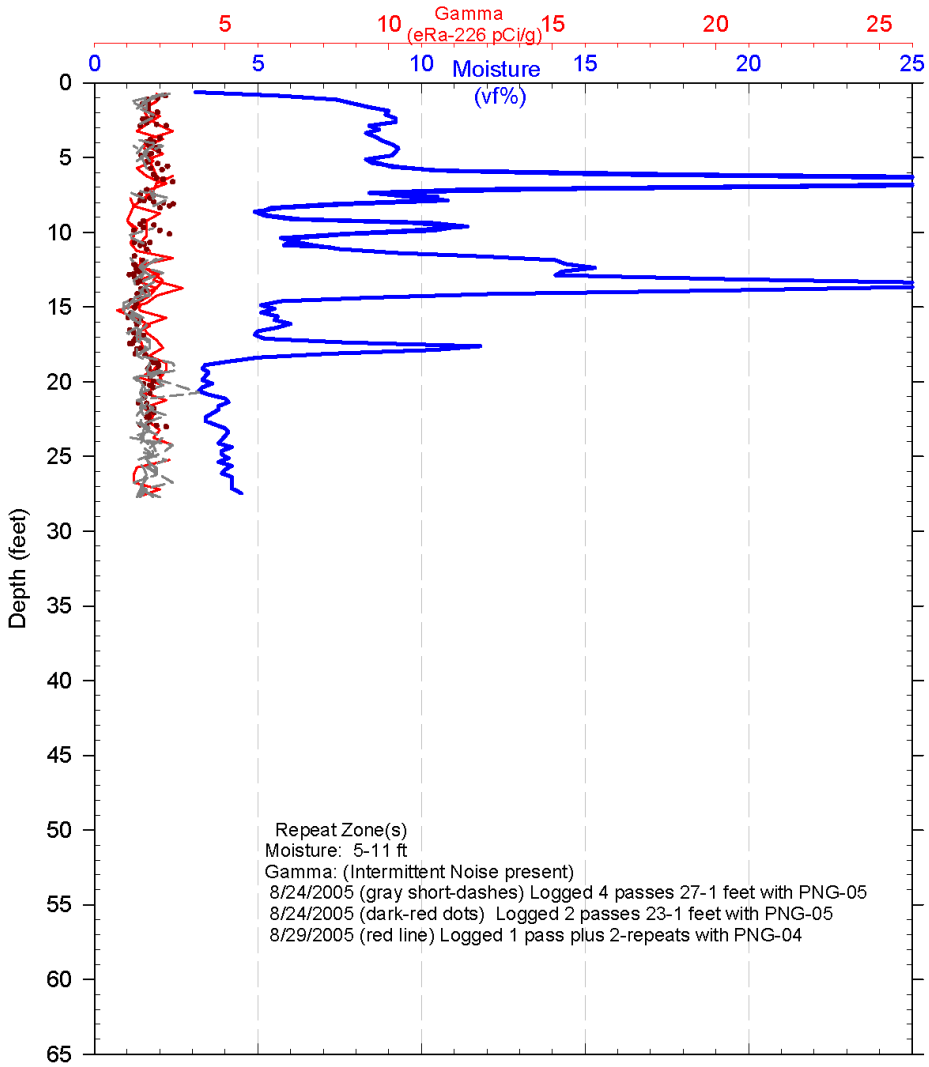


Small Diameter - Gamma & Moisture Survey

Duratek Federal Services & Pacific Northwest Geophysics

Project: Tank Farm Push, C-152
Probehole: C4447

Log Date: August 2005
Depth Ref: Ground Level



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APPENDIX B

SPECTRAL GAMMA SURVEY RESULTS

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B1.0 SPECTRAL GAMMA SURVEY RESULTS

Spectral Gamma surveys were collected in two probe holes. The survey interval in each probe hole (C4409:21-30 ft and C4417:14-20 ft) was selected based on a transition from lower to higher activity identified in the gross gamma survey and significant moisture content changes (from low to high) within the interval.

The spectral gamma survey data were processed to quantify the concentrations of KUT (the three natural radionuclides) and are presented graphically below. These log responses are typical of spectral gamma surveys from other detector types (i.e., high-purity germanium) that are collected with comparable counting times. If better precision is desired then longer counting times are required.

The gross gamma response for both surveys clearly shows the transition in the gamma activity of the subsurface formation materials. Review of the KUT log responses with the gross gamma response reveals some interesting points.

- The potassium values show a relatively smooth response (confirming the good precision) with small incremental change between successive depth locations. The potassium distribution follows the general trend of the gross gamma response; however, detail differences are quickly observed. This general trend indicates that a significant percentage of the gross gamma response is generated from potassium.

- The relatively high concentrations of potassium (range from 12 to 20 pCi/g) contribute to the good measurement precision. The concentration of uranium and the concentration of thorium are both much lower (less than 1 pCi/g) and the computed concentrations have lower precision (high uncertainty) as a percentage of the concentration.

- The thorium values show lower precision as indicated by large incremental change between values at successive depth locations and by the noticeable difference in values between the main survey and repeat spectra measurements. The general trend of thorium compares relatively well with the gross gamma response, which indicates that a percentage of the gross gamma response is generated from the low concentration of thorium.

The uranium values show the lowest precision of the three radionuclides. This is indicated by (1) a large difference between the main and repeat survey measurements, (2) very large incremental changes between the sample depths, (3) no noticeable change in the apparent uranium concentration, within the survey interval, which also confirms the large measurement uncertainties, (4) the large uncertainty in uranium concentration masking the minor concentration changes that may be present in the subsurface formation materials, and (5) the lack of noticeable change in uranium concentration within the survey interval, which means that the computed uranium content cannot be used to construct a computed gross gamma response.

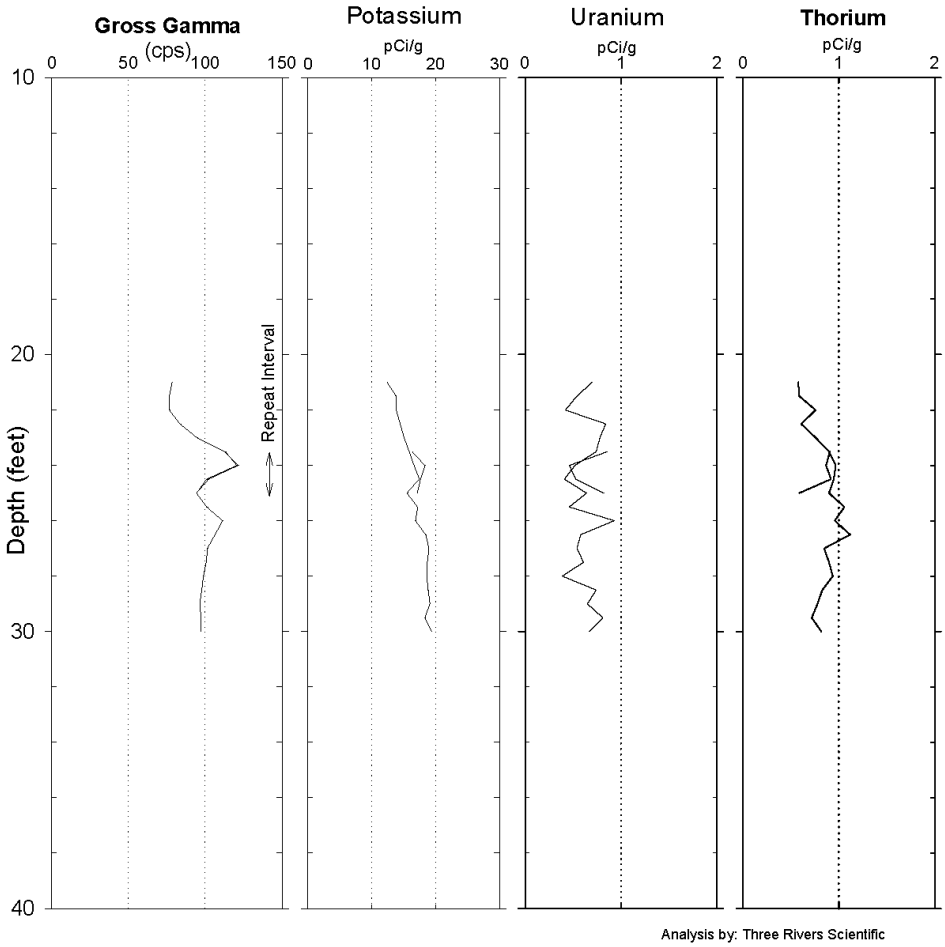
DTS-RPT-079, Rev. 0

Small Diameter Logging Service
BGO Scintillator Survey

Pacific Northwest Geophysics / Three Rivers Scientific

Project: C-152 Diversion Box
Probe hole: C4409

Log Date: August 2005
Gamma Emitting Radionuclides



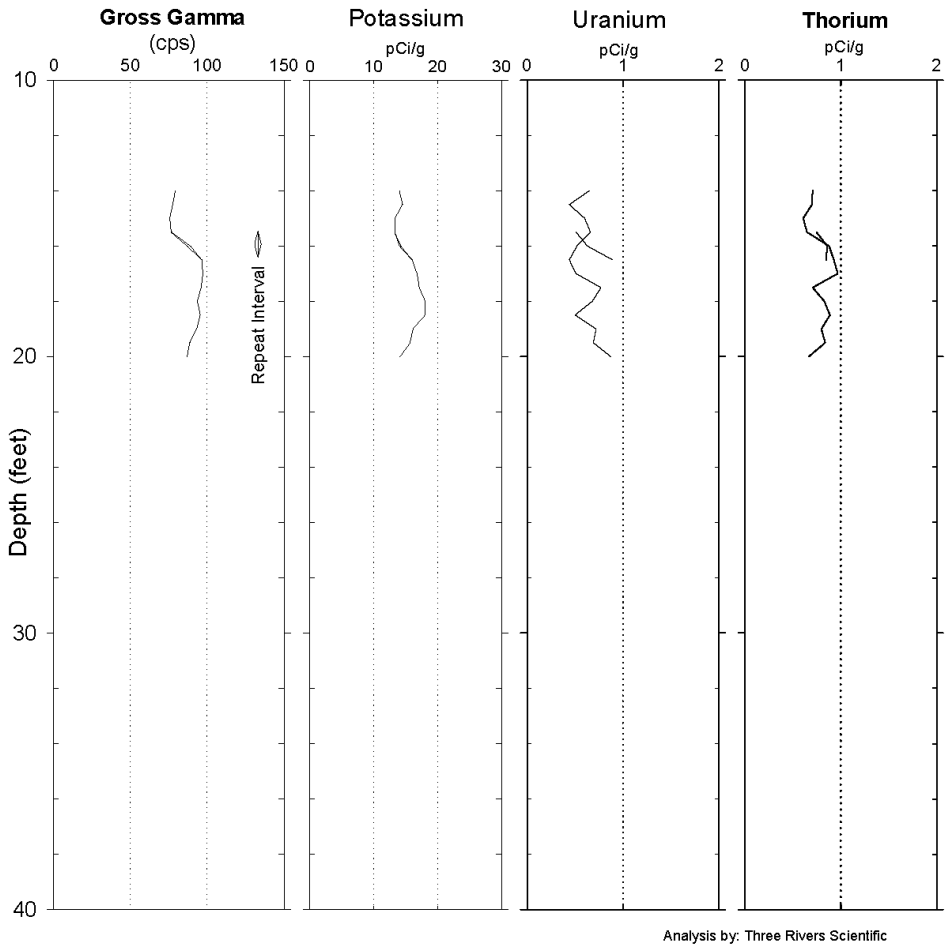
DTS-RPT-079, Rev. 0

Small Diameter Logging Service
BGO Scintillator Survey

Pacific Northwest Geophysics / Three Rivers Scientific

Project: C-152 Diversion Box
Probe hole: C4417

Log Date: August 2005
Gamma Emitting Radionuclides



B-3

APPENDIX G

WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTATION

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WASHINGTON STATE DEPARTMENT OF ECOLOGY

NOTICE OF INTENT TO CONSTRUCT A

Notification Number S 27610

Please check one: [X] GEOTECH SOIL BORING
[ ] SOIL SAMPLING (CONTAMINANTS)
[ ] VAPOR SAMPLING

This form MUST BE RECEIVED by the Department of Ecology 72 HOURS BEFORE you construct a well.

Submit one form for each job site. **Mail this form to the Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.** Instructions for filling out this form are printed on the back.

NOTE: PLEASE PRINT ALL ANSWERS. PROCESSING YOUR NOTICE OF INTENT MAY BE DELAYED IF ALL FIELDS OUTLINED IN THE BOXES ARE NOT FILLED IN COMPLETELY.

1. Property Owner U.S. DEPARTMENT OF Energy Phone No. 509 373 9630
   Address (include city, state, zip) 825 JAdwin Ave., Richland, Wa. 99352
2. Consulting Firm (if different from #1): N/A Phone No. ——
   Address (include city, state, zip) ——

01-Adams, 02-Asotin, 03-Benton, 04-Chelan, 05-Clallam, 06-Clark, 07-Columbia, 08-Cowlitz, 09-Douglas, 10-Ferry, 11-Franklin, 12-Garfield, 13-Grant, 14-Grays Harbor, 15-Island , 16-Jefferson, 17-King, 18-Kitsap, 19-Kittitas, 20-Klickitat, 21-Lewis, 22-Lincoln, 23-Mason, 24-Okanogan, 25-Pacific, 26-Pend Oreille, 27-Pierce, 28-San Juan, 29-Skagit, 30-Skamania, 31-Snohomish, 32-Spokane, 33-Stevens, 34-Thurston, 35-Wahkiakum, 36-Walla Walla, 37-Whatcom, 38-Whitman, 39-Yakima

3. Print COUNTY NAME of well location (*DO NOT ABBREVIATE*) BENTON
4. Well Location: SW 1/4-1/4 of the NE 1/4 Section 2 Township 12N Range 26 EWM or WWM (*circle one*)
5. Total number of borings to be constructed Twenty-Five (25)
6. Approx construction start date November 4, 2004

Latitude and longitude (if available) NOTE: 1/4-1/4, 1/4, section, township and range are REQUIRED.

Lat Degrees N136520 Lat Time ——
Long Degrees E575036 Long Time N/A Horizontal Collection Method N/A

7. Well Site Street Address Hanford Site, 200 E Area, C TANK FARM
8. Tax parcel number N/A

9. Contractor L & I Registration No. DURATFS990KS
10. Well Drilling Company Name Duratek Technical Phone No. 509 372 8029
11. Well Driller Name Dave Skoglie License No. 1580

12. SEND THE ENTIRE FORM. The bottom portion of this notice will be validated in our office and sent back to the name and address contained on the address label. This is the proof of notification. Please fill out the portion below CAREFULLY.

NOTE: Please copy the Notification Number (located in the upper and lower right corner) and keep in a safe place. Please reference this number when communicating with the Department of Ecology.

This notification number must be provided to your well driller: S 27610

RETURN NAME AND MAILING ADDRESS

Name Dave Skoglie
Mailing Address 345 Hill ST
City Richland State Wa Zip 99352

Client Name ——

Agency Validation
Date:

ECY 040-55 (Rev. 10/02)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Notification Number

A 30628

Notice of Intent to DECOMMISSION A WELL

This form must be received by the Department of Ecology with the required fees three days before you decommission a well. Complete both sides of this form. Submit one form for each job site. Mail this form to 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.

1. Property Owner: U.S. Department of Energy Phone No. 509 373 9630
   Address: 825 Jadwin Ave., Richland, Wa 99352
2. Agent (if different from #1): Duratek Technical Services Phone No. 509 372 8029
   Address: 345 Hill ST., Richland, Wa 99352
3. Job Site/Well Location: SW ¼ of the NE ¼ Section 2 Township 12N Range 26 E.WM or W.WM (circle one)
   Street Address (if known): Han Ford Site, 200 East Area, C Tank Farm
4. Well Identification No: C4401 through C4449.
5. Location of Well(s): *(please check county)*

☐	Adams County	01-ERO	☐	Grays Harbor County	14-SWR	☐	Pierce County	27-SWR
☐	Asotin County	02-ERO	☐	Island County	15-NWR	☐	San Juan County	28-NWR
☒	Benton County	03-CRO	☐	Jefferson County	16-SWR	☐	Skagit County	29-NWR
☐	Chelan County	04-CRO	☐	King County	17-NWR	☐	Skamania County	30-SWR
☐	Clallam County	05-SWR	☐	Kitsap County	18-NWR	☐	Snohomish County	31-NWR
☐	Clark County	06-SWR	☐	Kittitas County	19-CRO	☐	Spokane County	32-ERO
☐	Columbia County	07-ERO	☐	Klickitat County	20-CRO	☐	Stevens County	33-ERO
☐	Cowlitz County	08-SWR	☐	Lewis County	21-SWR	☐	Thurston County	34-SWR
☐	Douglas County	09-CRO	☐	Lincoln County	22-ERO	☐	Wahkiakum County	35-SWR
☐	Ferry County	10-ERO	☐	Mason County	23-SWR	☐	Walla Walla County	36-ERO
☐	Franklin County	11-ERO	☐	Okanogan County	24-CRO	☐	Whatcom County	37-NWR
☐	Garfield County	12-ERO	☐	Pacific County	25-SWR	☐	Whitman County	38-ERO
☐	Grant County	13-ERO	☐	Pend Oreille County	26-ERO	☐	Yakima County	39-CRO

6. Please fill out the portion below carefully. The return address label must contain the name and address of the person submitting this notification. This portion will be validated and returned to them as proof of notification. Send the entire form to Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.

This notification number must be provided to your well driller:

A 30628

Submitted by (return address)

Name Dave Skoglie
Mailing Address 345 Hills ST
City Richland State Wa Zip 99352

Agency Validation
Date: _____

ECY 040-24 (Rev. 10/96)

Continued on back ⟶

7. Approximate well construction start date: November 4, 2004

   Approximate well construction end date: MAY 15, 2005

8. Well Drilling Company: Precision Sampling Inc. Phone: 509 372 8045

9. Well Contractor's Name: Duratek Technical Services Driller's License No. 1580

10. Contractor's Registration No: DURATFS 990KS

(registration under Labor & Industries)

AGENCY USE

Your notification could not be validated. Please return with:

_____ **Well location (see #3).**

_____ **Name/Address of property owner (see #1).**

Instructions

Item 1: *Property owner's name, daytime phone number and mailing address. Omission of this information may result in processing delays.*

Item 2: *Agent's name. If your driller, consultant or another person is acting as your agent and submitting this notification fee, please provide their name, address and daytime phone number. A payment receipt will be mailed to them.*

Item 3: *Please provide the Township, Range, Section, quarter section, and quarter/quarter section where the well is located. This information can be found in your property legal description or the County Assessor's office. Also, if you have a street address for this property, please provide this information.*

Item 4: *If the well has a Department of Ecology Well Identification tag on it, record the six-character identifier here.*

Item 5: *Check the county in which the well is located.*

Item 6: *Please print when filling out the return address label. It should include the name and mailing address of the person submitting the form. Mail the entire form to the Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.*

Items 7-10: *This information should be obtained from your driller.*

For Assistance:
Contact the Department of Ecology Regional Office where the well is located (see codes in Item #5).

Central Regional Office	*(CRO):*	*(509) 575-2490*	*TDD: (509) 454-7673*
Eastern Regional Office	*(ERO):*	*(509) 456-2926*	*TDD: (509) 458-2055*
Northwest Regional Office	*(NWR):*	*(206) 649-7000*	*TDD: (206) 649-4259*
Southwest Regional Office	*(SWR):*	*(360) 407-6300*	*TDD: (360) 407-6306*

Ecology is an Equal Opportunity and Affirmative Action Employer.
For special accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (306) 407-6006.

Duratek
Federal Services

Duratek, Inc.
345 Hills Street
Richland, Washington 99354-5507
(509) 376-7055 - Phone
(509) 372-1435 - Fax

October 31, 2005

MGG-05-3971

State of Washington
Department of Ecology
Nuclear Waste Program
Hanford Project
3100 Port of Benton Boulevard
Richland, Washington 99352

To Whom It May Concern:

WATER WELL REPORTS

Attached please find water well report forms addressing decommissioning operations for forty (40) geotechnical borings. The water well report forms have been completed with information from field decommissioning operations (reference Decommissioning Notice of Intent Start Card A30628. These geotechnical borings are located on the Hanford Site, 200 East Area , C Tank Farm.

These geotechnical borings are designated as C4401, C4403, C4404, C4405, C4406, C4407, C4408, C4409, C4410, C4411, C4412, C4413, C4414, C4415, C4416, C4417, C4418, C4419, C4420, C4421, C4422, C4425, C4426, C4427, C4428, C4429, C4430, C4431, C4432, C4433, C4434, C4435, C4436, C4437, C4438, C4439, C4440, C4445, C4447 and C4448, respectively.

Should you have any questions, please contact me at (509) 372-8029.

Sincerely,

M. G. Gardner, Manager
Sampling and Well Services

527610

bd

Attachment

CHG - H. A. Sydnor

FH - G. G. Kelty

Duratek - K. D. Reynolds
D. E. Skoglie
S. H. Worley
File/LB
CHG/5110-10

MGG-05-3971

ATTACHMENT

WATER WELL REPORTS

Consisting of 41 pages,
including cover page.

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4401

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 60.0 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 60.0 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 60.0 ft bgs utilizing a	0	60.0
hydraulic hammer unit mounted on a backhoe.		
Geophysical logging was conducted to determine		
extent of the radiological contamination.		
Casing was backpulled while filling with cement.		
gallons were placed.	60.0	surface

N/A

10/25/04

Start Date 10/25/05 Completed Date _____

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle ☐ one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4403

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.8 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 58.8 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 58.8 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	58.8
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 28 gallons were placed.	58.8	surface

N/A

Start Date 07/12/05 Completed Date 7/21/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4404

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 20.0 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 20.0 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 _____ N/A ow 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

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 to 20.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	20.0
A soil sample was obtained from 20.0 to 21.5 ft.	20.0	21.5
Casing was backpulled while filling with cement. 11 gallons were placed.	21.5	surface

N/A

Start Date 10/25/05 Completed Date 07/27/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoghe for Scott Worley

Driller or trainee License No. 1976

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4405

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 31.5 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 31.5 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 N/A 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

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 to 31.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	31.5
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 15 gallons were placed.	31.5	surface
N/A		

Start Date 07/14/05 Completed Date 7/22/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4406

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 12.0 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 12.0 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 N/A 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

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 to 12.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	12.0
A soil sample was obtained from 20.0 to 21.5 ft.	12.0	13.5
Casing was backpulled while filling with cement. 5 gallons were placed.	13.5	surface
N/A		

Start Date 07/22/05 Completed Date 07/22/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4407

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.94 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 58.94 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 58.94 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	58.94
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 30 gallons were placed.	58.94	surface

N/A

Start Date 07/14/05 Completed Date 7/25/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4408

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 9.5 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 9.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date ____

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____

Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 9.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	9.5
A soil sample was obtained from 20.0 to 21.5 ft.	9.5	11.0
Casing was backpulled while filling with cement. 8 gallons were placed.	11.0	surface

N/A

Start Date 07/26/05 Completed Date 07/26/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. ____
Driller's Signature ____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4409

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 31.0 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 31.0 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 N/A 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

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 to 31.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	31.0
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 15 gallons were placed.	31.0	surface

N/A

Start Date 07/07/05 Completed Date 7/26/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D. E. Sikoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. ____
Driller's Signature ____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4410

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 23.0 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 23.0 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 23.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	23.0
A soil sample was obtained from 20.0 to 21.5 ft.	23.0	24.5
Casing was backpulled while filling with cement. 13 gallons were placed.	24.5	surface

N/A

Start Date 07/27/05 Completed Date 07/28/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4411

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 65.1 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 65.1 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 N/A 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

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 to 65.1 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	65.1
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 30 gallons were placed.	65.1	surface

N/A

Start Date 07/08/05 Completed Date 7/29/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. ____
Driller's Signature ____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle ☐ one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4412

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 23.5 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 23.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 23.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	23.5
A soil sample was obtained from 20.0 to 21.5 ft.	23.5	25.0
Casing was backpulled while filling with cement. 10 gallons were placed.	25.0	surface

N/A

Start Date 08/03/05 Completed Date 08/06/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4413

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 30.65 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 30.65 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 N/A 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

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 to 30.65 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	30.65
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 16 gallons were placed.	30.65	surface

N/A

Start Date 07/12/05 Completed Date 8/02/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4414

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 13.5 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 13.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 13.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	13.5
A soil sample was obtained from 20.0 to 21.5 ft.	13.5	15.0
Casing was backpulled while filling with cement. 9 gallons were placed.	15.0	surface

N/A

Start Date 08/03/05 Completed Date 08/06/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4415

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.1 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 58.1 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 58.1 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	58.1
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 30 gallons were placed.	58.1	surface

N/A

Start Date 07/12/05 Completed Date 8/04/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

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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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4416

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 14.5 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 14.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 14.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	14.5
Asoil sample was obtained from 14.5 to 16.0 ft bgs.	14.5	16.0
Casing was backpulled while filling with cement. 10 gallons was placed.	16.0	Surface

N/A

Start Date 08/12/05 Completed Date 08/12/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

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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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4417

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.1 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 58.1 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 58.1 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	58.1
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 30 gallons were placed.	58.1	surface

N/A

Start Date 07/14/05 Completed Date 8/05/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4418

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 14.5 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 14.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 14.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	14.5
Asoil sample was obtained from 14.5 to 16.0 ft bgs.	14.5	16.0
Casing was backpulled while filling with cement. 7 gallons was placed.	16.0	Surface

N/A

Start Date 08/11/05 Completed Date 08/11/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* S27610

CURRENT
Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4419

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 57.8 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 57.8 ft.

Perforations: ☐ Yes ☑ No
Type of perforator used _____
SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____
Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____
Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.
Material used in seal _____
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level _____ ft. below top of well Date _____
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 57.8 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	57.8
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 26 gallons were placed.	57.8	surface

N/A

Start Date 07/14/05 Completed Date 8/08/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.
Address 345 Hill St
City, State, Zip Richland, Washington 99352
Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4420

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 16.5 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 16.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 16.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	16.5
Asoil sample was obtained from 16.5 to 18.0 ft bgs.	16.5	18.0
Casing was backpulled while filling with cement. 10 gallons was placed.	18.0	Surface

N/A

Start Date 08/10/05 Completed Date 08/10/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4421

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.45 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 58.45 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 N/A 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

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 to 58.45 ft bgs utilizing a	0	58.45
hydraulic hammer unit mounted on a backhoe.		
Geophysical logging was conducted to determine		
extent of the radiological contamination.		
Casing was backpulled while filling with cement. 27		
gallons were placed.	58.45	surface
N/A		

Start Date 07/15/05 Completed Date 8/09/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4422

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 11.5 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 11.5 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 11.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	11.5
Asoil sample was obtained from 11.5 to 13.0 ft bgs.	11.5	13.0
Casing was backpulled while filling with cement. 10 gallons was placed.	13.0	Surface

N/A

Start Date 08/09/05 Completed Date 08/09/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4425

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 31.0 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 31.0 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 N/A 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

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 to 31.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	31.0
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 19 gallons were placed.	31.0	surface

N/A

Start Date 08/15/05 Completed Date 8/25/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4426

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 5.5 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 5.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 5.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	5.5
Asoil sample was obtained from 5.5 to 7.0 ft bgs.	5.5	7.0
Casing was backpulled while filling with cement. 3 gallons was placed.	7.0	Surface

N/A

Start Date 08/12/05 Completed Date 08/12/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Sikoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☒ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4427

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 32.4 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 32.4 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 N/A 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

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 to 32.4 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	32.4
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 18 gallons were placed.	32.4	surface
N/A		

Start Date 08/18/05 Completed Date 8/31/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE, Driller's Licensed No. ____

Driller's Signature ____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4428

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 18.0 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 18.0 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 N/A 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

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 to 18.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	18.0
Asoil sample was obtained from 18.0 to 19.5 ft bgs.	18.0	19.5
Casing was backpulled while filling with cement. 9 gallons was placed.	19.5	Surface

N/A

Start Date 08/09/05 Completed Date 08/09/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE, Driller's Licensed No. ____

Driller's Signature ____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4429

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.3 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 58.3 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 N/A 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

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 to 58.3 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	58.3
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 40 gallons were placed.	58.3	surface

N/A

Start Date 08/15/05 Completed Date 8/24/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4430

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 18.5 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 18.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 18.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	18.5
Asoil sample was obtained from 18.5 to 20.0 ft bgs.	18.5	20.0
Casing was backpulled while filling with cement. 10 gallons was placed.	20.0	Surface

N/A

Start Date 08/13/05 Completed Date 08/13/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one ☐ one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4431

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.9 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 58.9 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 N/A 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

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 to 58.9 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	58.9
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 28 gallons were placed.	58.9	surface

N/A

Start Date 08/16/05 Completed Date 9/02/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4432

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 20.5 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 20.5 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date ____

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____

Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 20.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	20.5
Asoil sample was obtained from 20.5 to 22.0 ft bgs.	20.5	22.0
Casing was backpulled while filling with cement. 10 gallons was placed.	22.0	Surface

N/A

Start Date 09/06/05 Completed Date 09/06/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D. E. Skoglie for Scott Myers

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,

Driller's Licensed No. ____

Driller's Signature ____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☒ circle ☐ one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4433

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 32.4 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 32.4 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 32.4 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	32.4
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 16 gallons were placed.	32.4	surface

N/A

Start Date 08/12/05 Completed Date 8/25/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle ☐ one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4434

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 13.5 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 13.5 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 13.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	13.5
Asoil sample was obtained from 13.5 to 22.0 ft bgs.	13.5	15.0
Casing was backpulled while filling with cement. 5 gallons was placed.	15.0	Surface

N/A

Start Date 09/08/05 Completed Date 09/08/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle ☐ one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4435

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 32.4 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 32.4 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 32.4 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	32.4
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 18 gallons were placed.	32.4	surface

N/A

Start Date 08/17/05 Completed Date 8/31/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4436

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 16.0 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 16.0 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used ____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand ____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? ____ ft.

Material used in seal ____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name ____

Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level ____ ft. below top of well Date ____

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? ____

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____

Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.

Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.

Artesian flow ____ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 16.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	16.0
Asoil sample was obtained from 16.0 to 17.5 ft bgs.	16.0	17.5
Casing was backpulled while filling with cement. 8 gallons was placed.	17.5	Surface

N/A

Start Date 09/08/05 Completed Date 09/08/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. SKoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE, Driller's Licensed No. ____

Driller's Signature ____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4437

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 58.9 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 58.9 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 58.9 ft bgs utilizing a	0	58.9
hydraulic hammer unit mounted on a backhoe.		
Geophysical logging was conducted to determine		
extent of the radiological contamination.		
Casing was backpulled while filling with cement. 34		
gallons were placed.	58.9	surface

N/A

Start Date 08/16/05 Completed Date 8/31/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4438

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 13.5 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 13.5 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 N/A 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

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 to 13.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	13.5
Asoil sample was obtained from 13.5 to 15.0 ft bgs.	13.5	15.0
Casing was backpulled while filling with cement. 8 gallons was placed.	15.0	Surface
N/A		

Start Date 09/07/05 Completed Date 09/07/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle ☐ one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4439

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☑ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 32.0 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 32.0 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 32.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	32.0
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 22 gallons were placed.	32.0	surface

N/A

Start Date 08/16/05 Completed Date 8/26/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature Scott Worley Per D.F. Skoglie

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4440

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 6.5 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 6.5 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 6.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	6.5
A soil sample was obtained from 6.5 to 8.0 ft bgs.	6.5	8.0
Casing was backpulled while filling with cement. 6 gallons was placed.	8.0	Surface
50% recovery a second sample will be taken in this area designated as boring C4445.		

N/A

Start Date 09/06/05 Completed Date 09/06/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM or WWM ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4445

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 6.5 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 6.5 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 N/A 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

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 to 6.5 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	6.5
A soil sample was obtained from 6.5 to 8.0 ft bgs.	6.5	8.0
Casing was backpulled while filling with cement. 4 gallons was placed.	8.0	Surface
50% recovery a second sample will be taken in this area designated as boring C4445.		

N/A

Start Date 09/07/05 Completed Date 09/07/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D. E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

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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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4447

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 31.6 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 31.6 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 to 31.6 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	31.6
Geophysical logging was conducted to determine extent of the radiological contamination.		
Casing was backpulled while filling with cement. 14 gallons were placed.	31.6	surface

N/A

Start Date 08/18/05 Completed Date 8/31/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

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* S27610

CURRENT Notice of Intent No. A30628

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

City Richland County Benton

Location SW 1/4-1/4 NE 1/4 Sec 2 Twn 12N R 26 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Geotech

TYPE OF WORK: Owner's number of well (if more than one) C4448

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 17.0 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 17.0 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 N/A 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

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 to 17.0 ft bgs utilizing a hydraulic hammer unit mounted on a backhoe.	0	17.0
A soil sample was obtained from 17.0 to 19.5 ft bgs.	17.0	19.5
Casing was backpulled while filling with cement. 6 gallons was placed.	19.5	Surface

N/A

Start Date 09/07/05 Completed Date 09/07/05

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 Name (Print) Scott Worley

Driller/Engineer/Trainee Signature D.E. Skoglie for Scott Worley

Driller or trainee License No. 1976

Drilling Company Duratek Inc.

Address 345 Hill St

City, State, Zip Richland, Washington 99352

Contractor's Registration No. DURATFS990K5 Date 10/28/05

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Washington State Department of Ecology
Nuclear Waste Program
Hanford Project

Document Receipt Verification

ADDRESSEE: STATE OF WASHINGTON DEPARTMENT OF ECOLOGY NUCLEAR WASTE PROGRAM HANFORD PROJECT
RECEIVER SIGNATURE: Sima CMendiza
DATE/TIME DELIVERED: Tuesday, November 01, 2005 9:34 AM
DOCUMENT TITLE: DURATEK **DOCUMENT # MGG-05-3971** **WATER WELL REPORTS**

SMEN461 11/1/2005

APPENDIX H

DRILLING AND SAMPLING DAILY WORK RECORDS (TEST BOREHOLES)

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Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5096	*WELL NUMBER*: N/A	*REPORT NUMBER*: 1	*DATE*: 1-4-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Attempt to demonstrate Hammer abilities to push verticle pipe.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 90'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5096: 0' – 90'

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op)

Jeff, Clayton (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	06:30	Travel
06:30	07:00	Travel to Pipeyard ICY road conditions.
07:00	09:00	Load rods and supplies for test push.
09:00	11:30	Move rig to site, set up ground cloth and set up rig on hole C5096.
11:30	12:15	Warm up, Lunch.
12:15	12:38	On-site, review plans and AHA-06-011-VISTA, Rev. 2 sign AHA
12:38	14:33	Start driving pipe. 12:40 1st rod down. 12:41 2nd rod easy 12:43 driven. Add guide. 12:45 3rd rod, 12:46 rod driven. 12:48 4th rod, 12:49 rod driven. 12:51 5th rod, 1' hard, 6" in 30 seconds, 12:58 driven. 3' in ~5 min. Stopped to mark mast with advancement points. 1:02 6th rod 1' in 30 seconds, 1' in 25 seconds, 1:04 driven. 1:06 7th rod, 1' in 30 seconds, 1:07 driven. 1:10 8th rod, 1:12 driven. 1:13 9th rod. 1:17 10th rod, 1:21 driven. 1:23 11th rod, 1:25 driven. 1:26 12th rod, 1:28 driven. 1:30 13th rod, 1:32 driven. 1:33 14th rod, 1:47 driven. 1:49 16th rod, 1:50 driven. 1:52 17th rod, 1:52 driven. 1:56 18th rod, 1:57 driven. 1:5919th rod, 2nd, getting harder, 2:03 driven. 2:05 20th rod, 2' hard and slow, getting easier, 2:10 driven. 2:12 21st rod, 2:14 driven. 2:16 22nd rod. 2:26 23rd rod, going slower, 2:33 stop and talk about penetration rates and point of refusal. Marked pipe for advancement rates.
14:33	15:00	Cleaned up. Worked reports.
15:00	15:30	Travel to office

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: [signature]

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 1-8-06
SIGNATURE: D.E. Shoglin Jr

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5096	*WELL NUMBER*: N/A	*REPORT NUMBER*: 2	*DATE:* 1-5-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Attempt to demonstrate Hammer abilities to push verticle pipe. Then back pull and decommission.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 23'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5096: 90' - 113'
Back pull 113' – 56'
added 20 gallons grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME
Wind Issues
0 Hours
WEATHER CONDITIONS (373-2716)

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, Clayton (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	06:30	Office.
06:30	07:00	Travel to Pipeyard.
07:00	09:00	Pre-job, look for tools, get water, discuss marking pipe and using 1" per minute as refusal point.
09:00	09:30	Inspect rig, warm up, mark pipe.
09:30	11:00	Back to driving rods, drove 24th, 25th, 26th, 27th, 28th rods. 29th rod hit refusal at 1' down on the rod, for a total depth of 113' BGS
11:00	11:30	Back pulled 2 rods, set up the drop bar to knock out tip.
11:30	12:00	Knocked tip out.
12:00	13:00	Lunch
13:00	14:30	Pulled 12 rods, added 20 gallons cement. Noticed Fan belt is coming apart. Needs replaced soon!
14:30	15:00	Reports
15:00	15:30	Travel to office.
		INFO. for fan belt: 1999 Case 580 Super "L" Turbo
		Case Construction Equip., Part, and Service 547-8920
		"86982450" Fan Belt Part #.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: S.H. Worley

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 1-8-06
SIGNATURE: D.E. Skoglie Jr

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5096	*WELL NUMBER*: N/A	*REPORT NUMBER*: 3	*DATE:* 1-6-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Complete back pulling and grouting. Replace fan belt. Inspect parts for 100-N test wells.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5096: 56' – 0' added 40 gallons grout.

START TIME: 11:30
END TIME: 08:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op)

Jeff, Clayton (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to Pipeyard. Worley getting Fan Belt.
06:30	07:00	Pre-job, warm up rig.
07:00	10:30	Back pulled 15 rods added 40 gallons grout.
10:30	11:30	Moved rig to wash pad. Washed rig.
11:30	12:00	Lunch
12:00	13:30	Replaced Fan Belt.
13:30	14:45	Drove 100-h warehouse met Tim Hottell, inspected PVC screens and riser pipe.
14:45	15:00	Back to Pipeyard clean up.
15:00	15:30	Travel to office
		INFO. for fan belt: 1999 Case 580 Super "L" Turbo
		Case Construction Equip., Part, and Service 547-8920
		"86982450" Fan Belt Part #.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: [signature]

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 1-8-06
SIGNATURE: D.E. Skoglie for

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5032	*WELL NUMBER*: N/A	*REPORT NUMBER*: 1	*DATE*: 1-9-06
CONTRACT NUMBER: 100-NR-2 (Fluor)	*START CARD NO*: R 63404	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: Test Hydraulic Unit Hammer Unit to attempt to Construct 10 Groundwater Monitoring wells at 100-N Springs	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: On the river bank of 100-N Springs.	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 23'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	23.0

BORING DEPTH (include sampling depth):
C5032: 0 – 23'

START TIME: 6:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME

None

0 Hours

WEATHER CONDITIONS (373-2716)

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op), T. Hottell (FDH BTR) B. Raider (HPTs) H. Sydnor (CHG rep.)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	07:30	Duratek Monthly Safety Meeting. PNNL Groundwater presents "Plumes".
07:30	08:30	Review plans for the 100-N Hydraulic Hammer test. Review AHA-06-011-VISTA Rev. 2
08:30	09:30	Travel to Pipeyard. Meet Harold Sydnor. Drilling Crew goes to collect supplies and meet Tim Hottell at 100-N
09:30	11:00	Travel back to pipeyard, prepare rig for travel.
11:00	12:00	Travel Rig to 100-N turn off. Parked rig off of road to attend Kick off meeting at 12:00.
12:00	12:45	Attend Pre-job/Kick off meeting per T. Hottell
12:45	13:36	Complete moving rig to the 100-N site. Set-up rig on C5032.
13:36		Start driving rods. 1st three rods drove easily, halfway down on 4th rod driving got very hard (~15' BGS).
		Continued to drive and rotate pipe for few minutes until pipe began to advance easier. 5th rod advanced with
		Little resistance. 6th rod advanced easily until ½ way down (~23' BGS) when advancement slowed. After
		Several minutes of driving with minor advancement determined we should stop for the day and tag the pipe
	14:30	In the morning with HPT support. We are currently at ~23' BGS.
14:30	15:00	Travel to pipeyard, clean up, start reports.
15:00	15:30	Travel to office.
		Drove ~23' in ~40 minutes = 6.9 inch/minute average.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E Shoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Zle O. Ausa

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5032; C5033; C5038	*WELL NUMBER*: N/A	*REPORT NUMBER*: 2	*DATE*: 1-10-06
CONTRACT NUMBER: 100-NR-2 (Fluor)	*START CARD NO*: R 63404	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: Test Hydraulic Unit Hammer Unit to attempt to Construct 10 Groundwater Monitoring wells at 100-N Springs	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: On the river bank of 100-N Springs.	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 38.2 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	12.0 ft

BORING DEPTH (include sampling depth):
C5032: 22 – 30.2', PVC set at 27.5' BGS.
C5033: 0 – 18', PVC set at 17' BGS
C5038: 0 – 12'

START TIME: 6:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME

None 0 Hours

WEATHER CONDITIONS (373-2716)
Windy and cold, 36 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op), T. Hottell (FDH BTR) B. Raider (HPTs) H. Sydnor (CHG rep.)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	07:00	Travel to Pipeyard. Pick up fuel cans, water tank and 6 more 4' rods. Travel to 100-N.
07:00		Plan of the Day meeting. Discussed Fluor's variance with the Dept. of Ecology on sealing requirements.
	08:00	Only 2' cement surface seal required on ground level caps/manhole covers and completions.
08:00		On-site, fuel rig with 20 gallons diesel. Tag pipe at 22.17' BGS with 2.13' stick up. No contamination
		detected. Continued driving. Drove 3" in 6 minutes, pipe still advancing slowly. Drove another 3"
	09:00	when pipe began to advance easily. Drove 6 more feet with little resistance, down to 30.2' BGS
09:00		Knocked tip out of tip holder and installed PVC screen and riser pipe to 27.5' BGS. Back pulled drive rods,
	11:30	added 1.5 bags of sand. (For details see Geologist reports)
11:30	12:30	Traveled to 100-N pump and treat trailer to clean up and have lunch.
12:30	13:00	Moved rig to 2nd hole C5033 and begin to drive pipe. Pipe advanced fairly easy, with moderate resistance at 14'. Need to set screen at 17'.
13:00		Start driving the 5th rod (~17' BGS) down to 18' BGS in order to knock tip out. Knocked tip out of tip holder.
	14:00	Installed PVC screen and riser pipe to 17' BGS. Back pulled drive rods and added 1 and ¾ bags of sand.
14:00	14:30	Moved rig to 3rd hole C5038, and drove 3 rods with little resistance.
14:30	15:30	Travel to pipeyard, clean up and work on reports.
		C5032: Drove ~8' in ~20 minutes = 4.8 inch/minute average.
		C5033: Drove ~18' in ~40 minutes = 5.4 inch/minute average.
		C5038: Drove ~12' in 20 minutes = 7.2 inch/minute average.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Wioglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Kyle O. Anor

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5038; C5039; C5034	*WELL NUMBER*:	*REPORT NUMBER*: 3	*DATE*: 1-11-06
CONTRACT NUMBER: 100-NR-2 (Fluor)	*START CARD NO*: R 63404	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: Test Hydraulic Unit Hammer Unit to attempt to Construct 10 Groundwater Monitoring wells at 100-N Springs	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: On the river bank of 100-N Springs.	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 56'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	19.0 ft

BORING DEPTH (include sampling depth):
C5038: 12 – 30', PVC set at 27.2' BGS.
C5039: 0 – 19', PVC set at 17' BGS
C5034: 0 – 19'

START TIME: 6:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
None 0 Hours

WEATHER CONDITIONS (373-2716)
Moderate winds, 40 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op), T. Hottell (FDH BTR) B. Raider (HPTs) H. Sydnor (CHG rep.)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	07:00	Travel to Pipeyard. Travel to 100-N. Discuss daily operations.
07:00	0745	Plan of the Day meeting.
07:45	07:55	Warm up rig continue driving hole third hole C5038.
07:55		Start driving the 4th rod. 8:20 5th rod driven down. Stopped to grease hydraulic hammer. 8:32 start driving
	09:00	6th rod penetration slowed at ~22'. 8:50 Started driving 7th rod. Reached total depth of 30'
09:00		Knocked tip out of tip holder and installed PVC screen and riser pipe to 27.2' BGS. Back pulled drive rods,
	10:43	added 1.5 bags of sand. (For details see Geologist reports)
10:43		Moved rig to fourth hole C5039. Drove to total depth of 19'. Knocked tip out of tip holder and installed PVC
	12:00	screen and riser pipe to 17' BGS. Back pulled drive rod.
12:00	13:00	Traveled to 100-N pump and treat trailer to clean up and have lunch.
13:00	13:20	Completed back pulling rods added 1 bag sand.
13:20	14:30	Moved rig to fifth hole C5034 and begin to drive pipe. Pipe advanced fairly easy, with moderate resistance at 14'. Drove to 19'.
14:30	15:30	Secure operations and site. Travel to pipeyard, clean up and work on reports.
		C5038: Drove ~18' in ~40 minutes = 5.4 inch/minute average.
		C5039: Drove ~19' in ~50 minutes = 4.56 inch/minute average.
		C5038: Drove ~19' in 50 minutes = 4.56 inch/minute average.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Kyle O. Olson

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5034; C5035; C5036	*WELL NUMBER*: N/A	*REPORT NUMBER*: 4	*DATE*: 1-12-06
CONTRACT NUMBER: 100-NR-2 (Fluor)	*START CARD NO*: R 63404	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: Test Hydraulic Unit Hammer Unit to attempt to Construct 10 Groundwater Monitoring wells at 100-N Springs	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: On the river bank of 100-N Springs.	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 48.5'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	20.0 ft

BORING DEPTH (include sampling depth):
C5034: 19 – 28.5', PVC set at 28.05' BGS.
C5035: 0 – 19', PVC set at 17' BGS
C5036: 0 – 20'

START TIME: 6:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
None 0 Hours

WEATHER CONDITIONS (373-2716)
Moderate winds, 40 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op), T. Hottell (FDH BTR) B. Raider (HPTs) H. Sydnor (CHG rep.)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	07:00	Travel to Pipeyard, pick-up push components. Travel to 100-N. Discuss daily operations.
07:00	0745	Plan of the Day meeting.
07:45		Warm up rig continue driving hole fifth hole C5034. Driving 5th rod, 5th rod down at 8:30, 8:35 start driving
	09:10	6th rod, 9:04 start driving 7th rod. Total depth 28.5'.
09:10		Knocked tip out of tip holder and installed PVC screen and riser pipe to 28.05' BGS. Back pulled drive rods,
	10:15	poured 1 and ¾ bags of sand.
10:15	12:10	Moved rig to sixth hole C5035. 10:36 start driving pipe. 10:42 start driving 2nd rod. 10:44 start driving 3rd rod
10:43	11:10	10:48 3rd rod driven. 10:50 start driving 4th rod. 10:58 start driving 2' rod. 11:10 completed driving to 19'.
11:10	11:51	Attempted to knock tip out. Drop bar is catching in the tip tube and getting stuck had to work drop bar several times to get tip free of drive pipe. Installed PVC screen and riser pipe to 17' BGS.
11:51	12:10	Begin back pulling drive rods.
12:10	12:50	Traveled to 100-N pump and treat trailer to clean up and have lunch.
12:50	13:20	Completed back pulling rods added 1 bag sand.
13:20	14:30	Moved rig to seventh hole C5036 and begin to drive pipe. 1:39 start driving 1st rod, 1:42 rod driven. 1:44 start driving 2nd rod. 1:56 start driving 3rd rod, 2:00 rod driven. 2:02 start driving 4th rod, 2:20 rod driven (hard). 2:27 start driving 5th rod.
14:30	15:30	Secure operations. Travel to pipeyard, clean up and work on reports.
		C5034: Drove ~9.5' in ~50 minutes = 2.28 inch/minute average.
		C5039: Drove ~19' in ~30 minutes = 7.6 inch/minute average.
		C5038: Drove ~20' in 40 minutes = 6.0 inch/minute average.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Theodore for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5036; C5037	*WELL NUMBER*: N/A	*REPORT NUMBER*: 5	*DATE*: 1-13-06
CONTRACT NUMBER: 100-NR-2 (Fluor)	*START CARD NO*: R 63404	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: Test Hydraulic Unit Hammer Unit to attempt to Construct 10 Groundwater Monitoring wells at 100-N Springs	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: On the river bank of 100-N Springs.	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 28'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	0.0 ft

BORING DEPTH (include sampling depth):
C5036: 20 – 29', PVC set at 27.15' BGS.
C5037: 0 – 19', PVC set at 17' BGS

START TIME: 6:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
None 0 Hours

WEATHER CONDITIONS (373-2716)
Moderate winds, 40 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op), T. Hottell (FDH BTR) B. Raider (HPTs) H. Sydnor (CHG rep.)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	07:00	Travel to Pipeyard. Travel to 100-N. Discuss daily operations.
07:00	07:30	Plan of the Day meeting.
07:30	08:56	Warm up rig continue driving hole seventh hole C5036. Driving 6th rod, 6th rod down at 8:13, 8:16 start driving 7th rod. Very slow penetration. 8:45 broke through hard layer. Completed driving 7th rod at 8:52. 8:54 start driving 2' rod, 2' rod driven to depth at 8:56. Total depth 29'
08:56	09:20	Knocked tip out of tip holder and installed PVC screen and riser pipe to 27.15' BGS.
09:20	10:10	Back pulled drive rods. Had issue with jaws and heel on break-out wrench worn out from tight joints. Poured 1 and ¾ bags of sand.
10:10	10:30	Moved rig to eighth hole C5037. 10:30 start driving pipe. Had to realign rig with hole.
10:30	11:16	10:37 start driving 2nd rod. 10:45 start driving 3rd rod, driven down 10:48. 10:50 start 4th rod, driven down 10:56. 10:58 start 5th rod, driven down 11:16. Completed to depth of 19'.
11:16	11:32	Knocked tip out of tip holder and installed PVC screen and riser pipe to 17' BGS.
11:32	12:00	Begin back pulling drive rods. Add 1 bag of sand.
12:00	15:30	Clean up site, drive rig back to pipeyard. Unload trucks.
		C5036: Drove ~9' in ~70 minutes = 1.54 inch/minute average.
		C5037: Drove ~19' in ~40 minutes = 5.7 inch/minute average.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David C. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Zle O. Anor

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5097	*WELL NUMBER*: N/A	*REPORT NUMBER*: 1	*DATE:* 1-16-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Demonstrate Hammer depth ability at 2nd vertical hole at Mock tank site.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 92'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	92.0 ft

BORING DEPTH (include sampling depth): C5097: 0' – 92' BGS

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Rain, Snow, Cold, 32 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op)

Jeff, Clayton (HPTs)

TIME FROM	*TIME* TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00		Travel to Pipeyard.
	07:00	Pre-job and discuss daily operations.
07:00	08:30	Wash rig
08:30	10:00	Drive rig to Mock tank site set up, get fuel and supplies.
10:00	10:15	Warm up break
10:15	11:45	Fueled rig. Drove 8 rods with little resistance.
11:45	12:45	Warm up, Lunch.
12:45	14:45	Drove 15 more rods to 92' BGS
14:45	15:30	Clean up and secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Lyle O. Cuno

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5097	*WELL NUMBER*: N/A	*REPORT NUMBER*: 2	*DATE*: 1-17-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Complete 2nd vertical test hole at Mock tank. Move to Vista site.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 35'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	92.0 ft	127 ft

BORING DEPTH (include sampling depth):
C5097: 92' – 127' BGS

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
Wind Issues
0 Hours

WEATHER CONDITIONS (373-2716)
Rain, Snow, Cold, 32 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, Clayton (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00		Pre-job and discuss daily operations.
	07:15	Pick-up push components @ pipeyard.
07:15	08:00	Equipment inspection and warm rig, set up for driving pipe.
08:00	11:00	Continued to drive rods to ~125'. Penetration rate went to 3" per minute for last 2'. Refusal! Tagged hole at 127' BGS. Will leave rods in ground for Gyro test.
11:00	11:30	Move rig to wash pad, wash rig.
11:30	12:00	Lunch
12:00	15:30	Moved rig and supplies to Vista site. Secure operations and site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David F. Shoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5003	*WELL NUMBER*: N/A	*REPORT NUMBER*: 1	*DATE*: 1-18-06
CONTRACT NUMBER: Vista	*START CARD NO*: S27621	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: PUSH TO 4 FT.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: VISTA	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 4.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	4 ft

BORING DEPTH (include sampling depth): 4 ft.

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

fair

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley,

WA LICENSE #: 1976

OTHER: S. Snook (Op)

Jeff, Clayton (HPTs)

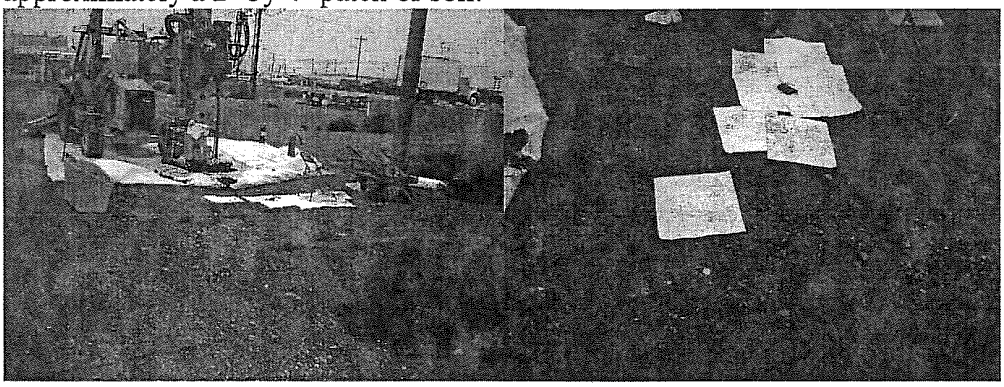
TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00		Discuss daily operations.
	10:00	Pick-up push components @ pipeyard.
10:00	10:40	Review AHA. Conduct equipment and site inspection.
10:40	11:10	Research hydraulic oil and felt.
11:10	11:50	Lunch
11:50		Set-up HHU.
	12:42	Initiate push activities. 1st rod down at 12:42.
	14:40	Hydraulic hose breaks. Approximately ½ cup spilled to soil. The spill was reported to Amos and Mitchell. Use absorbent pigs to clean-up the hydraulic oil.
	15:18	Take soil and pads in plastic for disposal (Al Rizzo).
	16:10	Secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David C. Skaglie for

REVIEWED BY: Olin Amos
TITLE: Project Manager for DATE: 4-17-06
SIGNATURE: Lyle O. Amos

Hose incident 1-18-06

While driving the 16th rod (at ~61 ') at Hole #1 at the Z-9 test site, at 2:40 a hydraulic hose sprung a leak. Approximately 1 quart of hydraulic fluid was released from the system. And a small mist sprayed beyond the felt and ground plastic. It was determined approximately less than a ½ cup may have reached the ground and lightly covered approximately a 2' by 4' patch of soil.



Kelly Olson and Scott Worley were on site at the time. Kelly immediately placed the controls in a stop position and shut the rig off. And we both began containing the spill laying out pig mats and containing the hydraulic oil. A call was made to Olin Amos and to Betty Mitchell. Olin notified Al Rizzo, Flour waste contact. Kelly and I backed up the pick-up truck to the mast and laid felt on the tail gate to catch spill and prevent slipping. The bad hose was identified and removed from the rig. Kelly took the hose and headed to Central Hose and Fitting to have it replaced. Al Rizzo called me at 3:13 asking for quantities and areas affected from the leak. Explained what happened and reported ~ quart of fluid captured on the felt ground cloth, and less that a ½ cup mist contacted the soil. He felt this was not a reportable quantity but was going to advise Flour waste group about it. Received a call from Mike Vermillion Fluor waste at 3:18. He advised to wrap up all ground cloth and felt, get the Fluor HPT to check the cloth for contamination and have the cloth disposed of through Duratek or Vista. He thought there may be a chance that a small amount of soil could be collected but did not advise that it was required. Worley went back to Pipeyard to get digital camera and returned for pictures of site.

The cause of this leak appears to be from the hose getting kinked where it comes from mast mounting plate, to the drive head mounting plate. The hose had wiggled itself through the hose wrapping, where it stuck out farther than the other hoses at the mount to the head mounting bracket is located. When a replacement hose was procured we had it made about 6" longer so that there would be more room if the hose wiggles itself through the hose wrapping. We also identified another hose working itself through the wrapping and beginning to cause another kink. A hose has been procured and it will be replaced Monday the 23rd of January before the rig is moved to location at the Mock Tank site.

Summary of Angle test holes:

Field activities began on January 4th 2006. Reviewed AHA-06-011-VISTA, Rev. 2, First two holes will be vertical driven probes to see how deep the HHU will push the drill pipe. All depths are figured from Ground surface 1' for tip and adaptor, each 4'rod driven to 1' stick up. 1st 4 rods went easily approximately 1-2 minutes per 4' rod to 16'. The fifth rod took ~7 minutes to drive to 20'. Very easy driving from 20' to 56'. Another hard spot was encountered at ~57' to 59', took ~14 minutes to drive the 14th rod. Rods drove easily again to 77', where another small hard layer was encountered. Another hard area was encountered at 82'. (5 minutes to drive 20th rod). Another hard spot encountered at ~89' (10 minutes to drive 22nd rod). Penetration rates were continuing to slow. At 90' The driving process was stopped so that we could review the recommended refusal rate of 1" per minute of driving, and how to determine when that rate was achieved. The 23rd drill pipe was was marked in 6" increments so the penetration rate could be tracked more closely.

January 5th, 2006: Continued to drive on drill string at a rate of ~6" per minute until we reached a depth of 112'. Penetration rate slowed to close to 1" per minute at 113'. Ceased driving operations. Set up grouting equipments and back pulled ~48 and had added 20 gallons of cement to the hole.

January 6th, 2006: Completed back pulling of all rods and added another 40 gallons of cement grout to complete decommissioning of test hole C5096. Our instructions were to move to 100-N to attempt monitoring well constructions for Fluor Hanford group.

January 16th, 2006: Returned to Mock tank site and set up rig to drive vertical test hole C5097. Drove 23 rods to ~90'.

January 17th, 2006: Continued to drive drill rods to a depth of 125' when penetration rates had slowed to ~3" per minute for next 2'. Determined point of refusal at 127' BGS. Instructed to leave test probe hole C5097 in the ground so that a Gyroscope could be used to determine how far off center the drill pipe was. Set up rig to be moved to Vista site for test.

January 23rd, 2006: Horizontal ground plates arrive at pipe yard. Unload ground plates and angle support plates and deliver to mock tank site. Set up ground plates and drove 6 pins to secure plates to ground. Discovered that angle plates need to be trimmed to fit onto ground plates. Angle plates were trimmed.

January 24th, 2006: Angle plate (60 degree) installed to ground plate. Had to work at getting rig in correct alignment in order to sit foot plate to angle plate. Several attempts and tried using rope as a guide for aligning rig. After rig was positioned correctly discovered that the foot plate is ½" to wide, (or angle plates to narrow). Had to remove

Vista Z-9 Test hole #1 1-18/19 Penetration Rates

Drill Rod Penetration Rates									
							Total	total	
Rod #	Depth	Start	1'	2'	3'	4'	Rod	minutes	Comments
1	4'	12:41					12:42	0:01	Start Hole #1 1/18/06
2	8'	12:44					12:45	0:01	
3	12'	12:46					12:47	0:01	
4	16'	12:50					12:51	0:01	
5	20'	12:53					12:54	0:01	
6	24'	12:56					12:57	0:01	
7	28'	12:59					13:00	0:01	
8	32'	13:01					13:02	0:01	
9	36'	13:04					13:05	0:01	
10	40'	13:06					13:07	0:01	
11	44'	13:09					13:21	0:12	Getting hard at 41'
12	48'	13:23	13:29	13:33	13:36	13:40	13:40	0:17	gravels
Penetration Rates			0:06	0:04	0:03	0:04	0:17		
13	52'	13:42	13:44	13:45	13:46	13:48	13:48	0:06	
Penetration Rates			0:02	0:01	0:01	0:02	0:06		
14	56'	13:51	13:52	13:54	13:59	14:04	14:04	0:13	
Penetration Rates			0:01	0:02	0:05	0:05	0:13		
15	60'	14:06	14:12	14:22	14:25	14:30	14:30	0:24	Hose breaks.
Penetration Rates			0:06	0:10	0:03	0:05	0:24		
16	64'	14:32	14:39	9:38	9:46	9:58	9:58	0:20	Continue driving @ 9:31 1/19/06
Penetration Rates			0:07		0:08	0:12			
17	68'	10:17	10:24	10:31	10:38	10:40	10:40	0:23	
Penetration Rates			0:07	0:07	0:07	0:02	0:23		
18	72'	10:43	10:45	10:49	10:54	10:58	10:58	0:15	
Penetration Rates			0:02	0:04	0:05	0:04	0:15		
19	76'	11:00	11:05	11:07	11:10	11:16	11:16	0:16	
Penetration Rates			0:05	0:02	0:03	0:06	0:16		
20	80'	11:18	11:22	11:30	11:32	11:35	11:35	0:17	clip break after 1' ~2 minnutes down
Penetration Rates			0:04	0:08	0:02	0:03	0:17		
21	84'	11:38	11:42	11:45	11:51	11:58	11:58	0:20	Shut down for lunch
Penetration Rates			0:04	0:03	0:06	0:07	0:20		
22	88'	12:31	12:34	12:40	12:50	12:55	12:55	0:24	Greased hammer while driving
Penetration Rates			0:03	0:06	0:10	0:05	0:24		
23	92'	12:58	13:01	13:05	13:10	13:14	13:14	0:16	clip break after 1' no time down. Drive head is broke go get another 1.25 hr. down
Penetration Rates			0:03	0:04	0:05	0:04	0:16		
24	96'	14:25	14:28	14:33	14:37	14:40	14:40	0:15	
Penetration Rates			0:03	0:05	0:04	0:03	0:15		
25	100'	14:42	14:44	14:47	14:52	14:58	14:58	0:11	End of day 1/19/06
Penetration Rates			0:02	0:03	0:05	0:06	0:16		
26	104'	7:35					7:47	0:12	
Penetration Rates				0:00	0:00	0:00	0:12		
27	108'	7:52	7:56	8:01	8:11	8:14	8:14	0:22	
Penetration Rates			0:04	0:05	0:10	0:03	0:22		
28	112'	8:17	8:18	8:19	8:22	8:24	8:24	0:07	
Penetration Rates			0:01	0:01	0:03	0:02	0:07		
29	116'	8:27	8:36	8:58					Clip broke down 2 minutes
Penetration Rates			0:09	0:22					6" in 12 min.8:42, 6" 8:58 REFUSAL!!! 116.75' toc, 4' stick-up
30	120'							0:00	9:13 start back pull complete at 11:30
Penetration Rates									Added 60 gallons cement grout.

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5003	*WELL NUMBER*: N/A	*REPORT NUMBER*: 2	*DATE*: 1-19-06
CONTRACT NUMBER: Vista	*START CARD NO*: S27621	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: PUSH TO 100 FT.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: VISTA	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 40 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	60 ft	100 ft

BORING DEPTH (include sampling depth): 100 ft.

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)
fair

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, Clayton (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00		Discuss daily operations.
		Pick-up push components @ pipeyard. Conduct equipment and site inspection.
	09:31	Initiate driving.
10:40	11:38	Push to 84 ft.
11:38	12:31	Lunch
12:31	14:58	Continue driving to 100 ft
14:58		Discuss driving operations.
	15:30	Secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David C. Shaghi for

REVIEWED BY: Olin Amos
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: O. Amos

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5003	*WELL NUMBER*: N/A	*REPORT NUMBER*: 3	*DATE*: 1-20-06
CONTRACT NUMBER: Vista	*START CARD NO*: S27621	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: PUSH TO 112.75 FT AND ABANDON.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: VISTA	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 12.75 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	100 ft	112.75 ft

BORING DEPTH (include sampling depth): 112.75 ft.

START TIME: 06:00
END TIME: 15:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
Wind Issues
0 Hours

WEATHER CONDITIONS (373-2716)
fair

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley,
WA LICENSE #: 1976
OTHER: S. Snook (Op)
Jeff, Clayton (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00		Discuss daily operations.
		Conduct equipment and site inspection.
	07:35	Initiate driving.
07:35	09:15	Push to 112.75 ft.
09:15		Abandon boring with 60 gallons grout. Reference WDOE Abandonment start card A107303.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David C. Shoglie for

REVIEWED BY: Olin Amos
TITLE: Project Manager for DATE: 4-17-06
SIGNATURE: Tyle C. Amos

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5098	*WELL NUMBER*: N/A	*REPORT NUMBER*: 3	*DATE*: 1-23-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Set up plates for horizontal push test	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley, WA LICENSE #: 1976, OTHER: S. Snook (Op) Paul Templeton (HPTs) John Auten, Dave Skoglie, Kent Reynolds, Harold Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Meet at office Travel to Pipeyard. Worley goes to Central Hose, and Connell Oil
06:30	10:00	Kelly and Mark start cleaning pipe from Vista test, change footclamp switch in control box, gather tools for the horizontal plates. Kent Reynolds, John Auten, Harold Sydnor arrive with horizontal plates. Kelly uses forklift to unload plates and load them onto trailer. Scott Worley drops off damaged hydraulic hose to Central Hose and Fitting then goes to Connell oil to pick up 10 gallons hydraulic oil. Travels back to Central hose and receives new hydraulic hose. Travels to Pipeyard.
10:00	11:30	Transport trailer and horizontal plates to Mock tank site. Scott Snook grabs a forklift and unloads plates from trailer. Steam cleaner had bad gasket on hose. Replaced connector. Resume cleaning. Hydraulic hose replaced on rig. Completed cleaning of the rig.
11:30	12:00	Lunch
12:00	15:30	Travel rig to the Mock tank site. Unstrapped and unbolted plates. Set up and begin driving 4' rods as securing pins. Found out angle plates need corner cut off to fit. Kelly took angle plate to Pipeyard to cut corners
15:30	16:00	Travel to office, Worley received call from Reynolds that SECO has ground felt in.
16:00	17:00	Worley travels to SECO and picks up felt.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David C Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5098	*WELL NUMBER*: N/A	*REPORT NUMBER*: 4	*DATE*: 1-24-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Set up rig to angle plates for horizontal push test. 60 Degrees from Horizon, 30 degrees from Verticle	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level		*TOTAL SHIFT FOOTAGE*: 100'	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	100 ft

BORING DEPTH (include sampling depth): C5098: 0 – 100'

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Nice day, sunshine but cool breezes.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley, WA LICENSE #: 1976, OTHER: S. Snook (Op) Jeff Clayton (HPTs) John Auten, Kent Reynolds, Harold Sydnor

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
05:30	06:00	Travel to pipe yard. Discuss daily operations.
06:00	06:30	Working on reports
06:30	08:00	Kelly Mark arrive. Review Inventories, Kelly and Mark add items from wash pad.
08:00	09:30	Kelly and Mark meet Auten at Mock Site Set up angle plate. Worley at pipe yard getting MSDS and working reports. Hanford Fire dept. arrives at pipe yard for fire extinguisher inspections. Did inspections.
09:30	10:15	Trying to setrig up on angle plate. Foot plate to wide. Worley getting Kelly set up for Carrier air.
10:15	11:30	Remove foot plate and take to pipe yard to cut ¼" of each side. Return to site, install foot plate, Set rig
11:30	12:00	Lunch
12:00	12:25	Set up, go get extra guides.
12:25	14:16	Start angle hole, Drive 22 rods. (See attached penetration rate sheet.) Stop for Fuel
14:16	14:40	Fueled up.
14:40	15:30	Drive 3 rods and a 2' for a total of 100'. (See attached penetration rate sheet.)
15:30	16:00	Return fuel cans, go to Pipeyard work reports
1600	1630	Travel to office

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Dougherty for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Mock Tank 30 dgree Angle
Test hole #1 (C5098)

Penetration Rates

Drill Rod Penetration Rates: 30 degree angle hole #1, C5098									
							Total	total	
Rod #	Depth	Start	1'	2'	3'	4'	Rod	minutes	Comments
1	4'	12:25					12:28	0:03	Start Slant Hole #1 30 degree1/24/06
2	8'	12:33					12:35	0:02	
3	12'	12:37					12:38	0:01	
4	16'	12:41					12:42	0:01	
5	20'	12:44					12:45	0:01	
6	24'	12:48					12:49	0:01	
7	28'	12:55					12:59	0:04	Getting harder
8	32'	13:02					13:04	0:02	
9	36'	13:10					13:12	0:02	
10	40'	13:14					13:19	0:05	clip broke1:15, start 1:18
11	44'	13:21					13:24	0:03	
12	48'	13:27					13:30	0:03	
13	52'	13:31					13:34	0:03	
14	56'	13:37					13:39	0:02	
15	60'	13:41					13:43	0:02	
16	64'	13:46					13:47	0:01	
17	68'	13:50					13:52	0:02	
18	72'	13:55					13:57	0:02	
19	76'	13:59					14:01	0:02	
20	80'	14:05					14:07	0:02	
21	84'	14:10					14:13	0:03	Leave to get Fuel 2:34 back,2:40 Start rig
22	88'							0:00	
23	92'	14:42					14:55	0:13	
24	96'	14:57					15:01	0:04	
25	100'	15:04					15:10	0:06	
26	102'	15:12		15:20				0:08	End of day 1/24/06

#4
1/24-06

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5098	*WELL NUMBER*: N/A	*REPORT NUMBER*: 5	*DATE:* 1-25-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Back pull and decommission test hole, 60 Degrees from Horizon, 30 degrees from Verticle	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5098: 100' – 0'

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME
Wind Issues
0 Hours

WEATHER CONDITIONS (373-2716)
Foggy and cold.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, SH Worley, WA LICENSE #: 1976, OTHER: S. Snook (Op) Jeff Clayton Paul Templeton (HPTs)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	06:30	Travel to pipe yard.
06:30	07:30	Working on reports. Pre-job discuss grouting operations and supplies required.
07:30	08:00	Warm up 8-T for generator, load cement, water tank, etc.
08:00	09:00	Get water, (frozen hoses) fuel 8-T and generator. Arrive at mock tank site
09:00	09:37	Set up for grouting operations. Tried to change foot clamp jaws, had to replace whole piece,
09:37	10:00	Start back pulling rods, 2 rods out. E-tape issues had to get a heavier E-tape weight. Warm up break.
10:00	10:20	Get e-tape and weight, warm up break
10:20	10;40	Run E-tape again, tagged at 91.2', we have 93' of pipe and tip holder. Appears tip broke off and rods are filled with ~2' of dirt. Discussed options, pull string and run grout tip? Run water in and try to wash soil out? Mark thought may be running key rods in and see if we can push through it? Will try that first.
10:40	11:10	Leave for yard to get key rods.
11:10	11:45	Run key rods in the drill rods. Acts like tip is still in place. Used key rods to knock the tip out. Worked good!
11:45	12:15	Lunch
12:15	14:45	Back pulled a 2' and 4 rods and added 8 gallons grout. Back pulled 4 rods and added 8 gallons grout, back pulled 4 rods added 8 gallons grout. Back pulled 4 rods and added 8 gallons grout. Back pulled 3 more rods and found water and cement in the drill rods. Continued to pull rest of rods. Added 8 gallons grout to open hole at surface. Found soil plug 2' into tip holder and bottom rod.
14:45	16:00	Cleaned up cement mess as best we could. Installed the 60 degree plate to the steel pad. Installed the 60 degree rod guide to the steel pad. Emptied water tank and picked up. Secure Site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shaglis for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Zyle G. Gonor

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5099	*WELL NUMBER*: N/A	*REPORT NUMBER*: 6	*DATE*: 1-26-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Set up rig on plates for 30 degree, 45 degree, and 60 degree position. Drive 60 degree (from vertical) Hole #2 C5099	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	100 ft.

BORING DEPTH (include sampling depth):
C5099: 0' – 100'

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME
Wind Issues
0 Hours

WEATHER CONDITIONS (373-2716)
Windy and cold.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, D. Skoglie, WA LICENSE #: 1976, OTHER: S. Snook (Op) Jeff Clayton Paul Templeton (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to pipe yard.
06:30	07:30	Pick up materials and supplies from Pipeyard.
07:30	08:00	Safety brief: boy shot by stray bullet in home. Warm up rig, inspect.
08:00	10:04	Attempt to set up back hoe/hammer to reach all three angle positions. Back hoe had to be moved for each position. Auten is designing a "T" square to line back hoe to the angle plate. Set up on the 60 degree test hole #2.
10:04	12:01	Start driving test hole #2. See attached penetration sheet for details. Secure site
12:01	12:15	Travel to Pipeyard for lunch.
12:15	12:45	Lunch
12:45	13:15	Pick up rods for the 45 degree test hole #3. Stage on racks at Mock tank site.
13:15	14:30	Remove 30 degree mount and install 45 degree mount. Align back hoe/mast to 45 degree plate.
14:30	16:00	Clean up location and secure.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5098	*WELL NUMBER*: N/A	*REPORT NUMBER*: 4	*DATE*: 1-24-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Set up rig to angle plates for horizontal push test. 60 Degrees from Horizon, 30 degrees from Verticle	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 100'		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	100 ft

BORING DEPTH (include sampling depth): C5098: 0 – 100'

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Nice day, sunshine but cool breezes.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, SH Worley, WA LICENSE #: 1976, OTHER: S. Snook (Op) Jeff Clayton (HPTs) John Auten, Kent Reynolds, Harold Sydnor

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
05:30	06:00	Travel to pipe yard. Discuss daily operations.
06:00	06:30	Working on reports
06:30	08:00	Kelly Mark arrive. Review Inventories, Kelly and Mark add items from wash pad.
08:00	09:30	Kelly and Mark meet Auten at Mock Site Set up angle plate. Worley at pipe yard getting MSDS and working reports. Hanford Fire dept. arrives at pipe yard for fire extinguisher inspections. Did inspections.
09:30	10:15	Trying to setrig up on angle plate. Foot plate to wide. Worley getting Kelly set up for Carrier air.
10:15	11:30	Remove foot plate and take to pipe yard to cut ¼" of each side. Return to site, install foot plate, Set rig
11:30	12:00	Lunch
12:00	12:25	Set up, go get extra guides.
12:25	14:16	Start angle hole, Drive 22 rods. (See attached penetration rate sheet.) Stop for Fuel
14:16	14:40	Fueled up.
14:40	15:30	Drive 3 rods and a 2' for a total of 100'. (See attached penetration rate sheet.)
15:30	16:00	Return fuel cans, go to Pipeyard work reports
1600	1630	Travel to office

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skeglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5100	*WELL NUMBER*: N/A	*REPORT NUMBER*: 7	*DATE*: 1-30-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Drive 45 degree (from vertical) Hole #3 C5100	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	102 ft

BORING DEPTH (include sampling depth):
C5100: 0' – 102' BGS

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)
Windy and cool, sunshine. 11:30

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, S. Worley, WA
LICENSE #: 1976, OTHER: S. Snook (Op) Jeff Clayton Paul Templeton (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to pipe yard.
06:30	07:00	Pick up materials and supplies from Pipeyard. (Packer trailer burned Friday off. Dangerous area).
07:30	08:00	Safety meeting: Wind issues. Trying to keep plastic and felt from blowing in our way.
08:00	09:41	Crew went to get fuel, and wait for attendees to arrive
9:41	10:27	Attendees arrive. Start driving test hole #3 See attached penetration sheet for details.
10:27	10:42	Take a break from the wind.
10:42	11:45	Continue to drive rods.
11:45	12:15	Lunch.
12:15	13:19	Continue to drive rods. Stopped to tag bottom.
13:19	14:00	Tagged hole at ~99' TOC. Somehow missed on rod counts. Drove one more rod and ran Key rods to verify depth. Total depth 102' BGS.
14:00	16:00	Cleaned truck, picked up cleaned up did reports.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Drogle for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5100	*WELL NUMBER*: N/A	*REPORT NUMBER*: 8	*DATE*: 1-31-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Test PNG's logging system on slant holes.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Windy and cool, sunshine. 11:30

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs), R.Price, B. Randall (PNG)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
05:30	06:00	Check E-mails, Hottel needs unique well tags. Margie and training issues.
06:00	07:30	Kelly and Mark leave for site, fuel rig, meet Randy and Brent. Move rig helpwith logging. Worley working office issues.
07:30	08:00	Safety meeting: tripping hazards around site.
08:00	09:00	Run logging equipment. Use 3/8 key rod to push logging tool into the hole. Discusssed using ¼" hydrostar rod in 10' sections for pushing tool. Kelly and Mark go get more fuel for rig.
09:00	13:26	HPT Jeff arrives review the logging process and radiological controls required. We will operate as before that the tool and cable is in a seal tube (drill rod) and only surveys will be of instrument and a survey of coiled wire on spool when releasing from the farm. Wrapping up logging. PNG off location.
13:26	15:30	Welded tab on 60 degree plate. Scavenged plate for building new foot pad. Cleaned up drillers trailer.
15:30	4:00	Secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Zyle O. Ana

Duratek Federal Services, Inc., Northwest 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*: 2-1-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Review training requirements, prepare foot plate and Angle plates.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)
Very windy gusts to 40+

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs),

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to site.
06:30	08:00	Reviewed training records and some cleaning of trailers.
08:00	11:30	Remove foot plate and angle plates, had them surveyed by HPT. Collected miscellaneous steel from Pipeyard to use for extension foot plate. Travelled to Bluestar shop to fabricate plates. Worley check CHG records for Radiological and Respirator records.
11:30	12:00	Lunch
12:00	3:30	Continue fabrications and angle plates.
		Note: Due to wind and burned packer trailer we are not allowed to work in Pipeyard.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David F. Steagle for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: N/A	*WELL NUMBER*: N/A	*REPORT NUMBER*: 10	*DATE*: 2-2-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Clean up and organize equipment, check fire extinguishers, prepare knock out rod adaptor for 3/8 rod	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level		*TOTAL SHIFT FOOTAGE*:	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Moderate winds

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, D. Skoglie, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs),

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to site. Worley is sick with cold today.
06:30	08:00	Wait for daylight meet with tank farm personell, discuss clean up.
08:00	11:30	Clean up and put away equipment at C-farm. Go to Mock tank site inspect fire extinguishers, haul equipment to Pipeyard for storage.
11:30	12:00	Lunch
12:00	15:30	Picked pallets and misc. stuff at TY-farm, stored and disposed of appropriately. Went to Pipeyard and identified shelving units to use for storage in the Vadose conex. Began working on a knock out rod that could be used with 3/8 rods, when Dave Skoglie identified a deficiency in PPE for working against hot work permit in the Pipeyard. Cutting and welding operations were halted.
15:30	16:00	Secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Tyler C. Amor

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: N/A	*WELL NUMBER*: N/A	*REPORT NUMBER*: 11	*DATE*: 2-3-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Clean up and organize equipment, set up Vadose conex box. Review and advise on Hot work permit for welding shop.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Moderate winds

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs),

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to site.
06:30	08:00	Wait for daylight meet with tank farm personell, discuss clean up.
08:00	11:30	Worley delivers felt to tents at Pipeyard. Go to welding shop at review hot work permit. Verified PPE requirements and discussed dangers of welding/cutting assorted types of metals. Verified PPE is now available to Blue star crew. Cleaned out and organized Vadose zone conex, added a shelf unit to store equipment.
11:30	12:00	Lunch
12:00	14:30	Discussed with NCO's plans on wrapping and moving old casing from C-farm. Went to Mock tank site and changed fire extinguisher tags to more durable plastic type. Sorted through and cleaned up horse trailer at C-farm.
14:30	16:00	Secure site and travel to office.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglue for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4/13-06
SIGNATURE: Lyle O. Cain

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5097	*WELL NUMBER*: N/A	*REPORT NUMBER*: 12	*DATE*: 2-6-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Unload Auten truck, Support Gyro logging	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Warm sunshine, no wind.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs),

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to site.
06:30	08:00	Wait for daylight meet with tank farm personell, discuss getting into C-farm to remove casing.
08:00	9:00	Travel to Mock tank site get details on Jet-Lube. Load extra tips, to take to pipryard.
9:00	11:00	Meet John Auten, let him discuss and demonstrate the aluminum rivot tip holding system. Unload 75 rods and tip holder (Pinned), two tips, two head pins, two J-hooks/heels. Set up chemical storage unit (empty) for stoarage of rods and Jack unit. Mike and Jim arrive at Pipeyard with Gyro unit. Review and sign AHA-06-011-Vista Rev. 2. They take gyro rig to Mock tank site.
11:00	11:30	Lunch
11:30	15:00	Set-up Gyro to calibrate line counter, and test on Hole C5097. Prepared test tip and tip holder.
15:00	16:00	Clean up and secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5100	*WELL NUMBER*: N/A	*REPORT NUMBER*: 13	*DATE*: 2-7-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Prepare minor support equipment. Support Gyro logging	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0
TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Warm, sunshine no wind

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs), M Dorsey, J. Meisner (Gyro) D. Skoglie

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to site.
06:30	08:00	Wait for daylight meet with tank farm personell, discuss getting into C-farm to remove casing.
9:00	11:30	Update Inventory. Search for old parts to use for support equipment.
11:30	12:00	Lunch
12:00	15:00	Set-up Gyro to calibrate line counter, and test on Hole C5100(45 degree hole). Then attempted to run gyro on C5099 (30 degree hole) Had troubles with computer on this one. Will try again tomorrow. Prepared miscellaneous support equipment.
15:00	16:00	Discuss operations and secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David C. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5097; C5099; C5100	*WELL NUMBER*: N/A	*REPORT NUMBER*: 14	*DATE:* 2-8-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Prepare minor support equipment. Begin back pulling decommission of hole C5097 Support Gyro logging C5099, C5100	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5097: Back pulled 127' – 32' BGS added 32 gallons cement grout.

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)
Warm, sunshine no wind

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs), M Dorsey, J. Meisner (Gyro) D. Skoglie

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	06:30	Travel to site.
06:30	08:00	Wait for daylight meet with tank farm personell, discuss back pulling C5097 and Gyroscope on C5099, C5100.
08:00	11:30	Travel to pipeyard. Deliver office supplies to Dale. Prepare hydrostar rods for pushing Gyro down hole. Collect cement and water for decommissioning, deliver to site, Set up ground cloth and rig on hole.
11:30	12:00	Lunch
12:00	12:30	Pre-job discuss pulling and grouting operation.
12:30	14:20	Begin back pulling operations. 2 rods out 12:50 run tag tape for tip removal. Tip is in tip holder. Need to run Drop bar to knock out tip, required changing large drop bar with smaller bar to pass through the square tip holder. 1304 Knocked tip out. Pulled 6 more rods and added 16 gallons cement grout. 1:36 continue back pulling. Pulled 8 more rods and then added 16 more gallons of cement grout.
14:20	15:00	J. Meisner and M. Dorsey arrive on site. Stopped pulling operations to discuss Gyroscope operations and demonstrate new tool created for pushing Gyroscope to bottom of C5099 (30 degree test hole). Discussed how gyroscope will be run while inside tank farms. Meisner indicated there would be a special winch and tri-pod shieve that would be used to run the gyro tool. Discussed how it was supposed to be set up and operated. Also discussed why the gyro tool would only go to 85' on yesterdays test on C5099 (30 degree). Wanted to know if we need to try again to get to 100'. Answer is yes. Need as much data as we can get on these test holes. Determined we will have to try again with new push rod.
15:00	16:00	Secured rig. Cleaned up.

David E. Skoglie for Scott Worley

Reviewed by Zyle O. Ann 4-13-06

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5097, C5100	*WELL NUMBER*: N/A	*REPORT NUMBER*: 15	*DATE*: 2-9-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Complete back pulling decommission of hole C5097, Repeat Gyro logging C5100. Setup rig on C5100 start back pull.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level		*TOTAL SHIFT FOOTAGE*: N/A	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5097: Back pulled 32' – 0' BGS added 32 gal. Cement grout (64gal. total) C5100: pulled 4', 102' – 98'

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Cool, sunshine, 7mph wind from North

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op) Jeff Clayton, (HPTs), M Dorsey, (Gyro)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Travel to site.
06:30	07:30	Meet with tank farm personell, discuss complete back pulling C5097 and Gyroscope on C5099, C5100. J. Clayton to survey rods on racks. Rods to be loaded and delivered to wash pad.
07:30	08:00	Load water tank for cement grout.
08:00	10:00	Complete back pulling C5097, added 32 gallons cement grout. Load rods and take to Pipeyard wash pad. S. Worley checks in our back pulling operation and then leaves for pipe yard to find Dummy rod 1.5" diameter and 7' long to test C5099 for ability to run gyro past 85'.
10:00	10:30	Complete dummy rod.
10:30	11:30	Attempted to run dummy rod. Made it to 15 when stopped. Returned to pipe yard. Advised to shorten dummy rod to 3' and try again.
11:30	12:00	Lunch
12:00	12:30	Met with Betty to discuss safety and fire issues.
12:30	13:00	Travel to mock site with short dummy rod and gyroscope equipment. Ran the short dummy rod, Used hydrostar push rods to get dummy rod to travel down 30 degree hole C5099. Dummy rod would only travel to 92' before getting stuck. Removed dummy rod and hydrostar rods. Mike is setting up gyro equipment.
13:00	14:00	Waiting for gyro to warm up. Run gyro on 45 degree C5100. Breakdown gyro and move equipment.
14:00	14:20	Set up rig on C5100 45 degree hole fairly smooth. Used rope for alignment on back hoe. Discussed having role of belting for alignment.
14:20	15:15	Began pulling rods and identified stress point on guide. Unscrewed guide and removed plastic shims. Decided that next time the guide should be totally removed before setting up rig. Removed mounting bolts from guide. Now pipe pulls without restriction. Pulled one rod. Discussed safety issues with driller and helper while working around angle set up. Don't stand over or lean over foot clamp while operating wrenches. Watch out for fingers when holding wrenches. Need to break top head joint before totally unscrewing pipe from next joint. Very good team! Everyone contributes and watches out for issues that could arise.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David F Shoglin for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Lyle A. Cua

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5100	*WELL NUMBER*: N/A	*REPORT NUMBER*: 16	*DATE:* 2-13-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Attempt back pulling decommission of hole C5100, Repeat Gyro logging C5100 and C5099. Setup rig on C5100 start back pull.	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5100: Back pulled 98' – 94' BGS

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Cool, sunshine, 7mph wind from North

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, Op) D. Youngblood, (HPTs) J. Meisner, M Dorsey, (Gyro)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	07:00	Duratek safety meeting with Repko, K. Olson on Jury duty. Worley E-mails and set up mobile office.
07:00	07:30	Travel to Site, Repko gets cement from yard. Auten calls with 12:00 equipment delivery.
07:30	08:00	Unload truck, gather equipment for knocking out tip and grouting. Rig set up
8:00	09:00	Pulled next rod out (2nd) Ran key rods 24 + 3' knock out tool had 3' 1 ¼" stick up. = 1', 1 1/4" of dirt in rods, Drove knock out tool 1' into plug and pulled out. HPT surveyed knock out with 1' soil, rod no contamination.
9:00	10:20	Ran key rods without tool to punch pilot hole through plug.
10:20	11:20	Check knock tip to tip holder run knock out rod, Mark and Snook Worley meets Auten , Sydnor for delivery
11:20		Back on to knock out rod, no go pull knock out rod. Dorsey calls gyro different can we run another?
11:30	12:00	Repko takes lunch
12:00	13:20	Stand by for gyroscope. 11:50. Kelly called he's excused from jury, headed out.
13:20	14:00	Dorsey and Gyro arrive Set up, warm up and run gyro in 45 degree and 30 degree hole. 14:00 Worley leaves for sampling meeting at 2440 stevens.
14:00	14:30	Attempted to run gyro on C5100 45 degree hole. Tool stopped at 15' tried several times but could not get past. Ran the 3' dummy rod and it sailed right through. Thought that the back pulling of the 2 rods may have caused the pipe to bend enough to stop the 6' gyro. If we had the expected 3' gyro probably would not have been an issue.
14:30	15:30	Set up and ran the gyro on C5099 30 degree hole. Ran down to ~62'.
16:00	16:30	Discussed issues with Meisner and Dorsey regarding gyro in 45 degree hole and results of 30 degree hole. Preliminary results showed 30 degree hole matched previous gyro run in same hole.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shuglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5100	*WELL NUMBER*: N/A	*REPORT NUMBER*: 17	*DATE*: 2-14-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Complete back pulling decommission of hole C5100,	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5100: Back pulled 94' – 0' BGS added 16 gal. Cement grout

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues 0 Hours

WEATHER CONDITIONS (373-2716)

Cold, Overcast in am. sunshine, 7mph wind from North

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, Op) D. Youngblood, (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Discuss daily operations.
6:30	08:00	Stand by for gyro result discussed sampling meeting issues, plate and probe locations with drill crew.
08:00	08:40	Received the call Gyro runs are good! Start back pulling. Warm up rig and start back pulling.
08:40	09:15	After back pulling 4 more rods run knock out tip on 3/8" rods to see if tip will fall out now. 9:00 rods and knocker in with, no movement. Pull rods/knocker. Resume back pulling.
09:15	10:00	Back pulling, rod joints are very tight and will not break easily requires several attempts with break out wrench while hitting joint with hammer.
10:00	10:20	Warm up break. Discussed using a block to place between mast and drill rod to support pipe when using breakout wrench. (breakout wrench is causing rods to bend making joints at an angle)
10:20	11:30	Used block, 4X4 and shim to make back up block. No hammering required. Asked operator D. Dudley to go to carpenters to make a block 16" long and 9 ¼" tall with a 2X4 shim to block rods while breaking. All rods removed 16 gallons cement grout add to top of hole. Tip and rod had a solid plug in end of it.
11:30	12:30	Worked through lunch to get angle plates set up and remove guide plate.
12:30	13:00	Travel to town for CHG C Tank Farm planning meeting.
13:00	13:30	Lunch
13:30	16:00	Planning meeting at 2440 bldg. Discussed sampling strategy.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David C Shoglie Jr

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5099	*WELL NUMBER*: N/A	*REPORT NUMBER*: 18	*DATE*: 2-15-06
CONTRACT NUMBER: 24196	*START CARD NO*: S 27604	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: back pulling decommission of hole C5099,	*REFERENCE*: DTS-DOW-013, Rev. 0	*LOCATION*: Mock Tank Site	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5099: Back pulled 102' – 0' BGS added 12 gal. Cement grout.

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Cold, sunshine, Cold, 7mph wind from North

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, (Op) J. Clayton, (HPTs)

B. Mitchell (Safety)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	06:30	Discuss daily operations.
6:30	08:00	Go to Pipeyard pick up Auten's "T" square for rig alignment. Discussed set up with T square and back pulling operations
08:00	09:00	Move rig and set up over 30 degree plate. Went pretty good using square. Started back pulling rods. Rod joints are still breaking very hard even with back up block.
09:00	09:15	Warm up break.
09:15	10:15	Back pulled 4 rods ran knock out rod. Knock out rod appeared to be getting stuck or wedged inside dirt inside drill rods. B. Mitchell arrives on site and discussed cold and frostbite condition with wind chill.
10:15	10:30	Warm up break.
10:30	11:30	Continued back pulling drill rods. Adjusted back up block closer to break out wrench, improves joint breaking.
11:30	12:15	Warm up and lunch.
12:15	14:00	Complete back pulling rods. S. Snook delivers new back-up block from carpenters shop. Added 12 gallons cement grout to open hole.
14:00	14:30	Pull nails from plate using rig.
14:30	16:00	Travel rig and 8-T back to pipe yard, pick up supplies for Vista push tomorrow.
16:00	18:30	Kelly holds over to steam clean pipe and rig, to make up for time missed due to Jury duty on Monday.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David P. Shaglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Lyle O. Cure

Vista Z-9 Test hole #1 Penetration Rates

2-16-04

Drill Rod Penetration Rates									
							Total	total	
Rod #	Depth	Start	1'	2'	3'	4'	Rod	minutes	Comments
1	4'	11:03					11:05	0:02	Start Hole #2 C5004 2/16/06
2	8'	11:05					11:07	0:02	
3	12'	11:07					11:09	0:02	
4	16'	11:09					11:12	0:03	
5	20'	11:12					11:19	0:07	
6	24'	11:19					11:22	0:03	
7	28'	11:22					11:25	0:03	
8	32'	11:25					11:29	0:04	
9	36'	11:29					11:32	0:03	
10	40'	11:32					11:37	0:05	
11	44'	11:37					11:45	0:08	
12	48'	11:45	11:52	13:00	13:15	13:20	13:20	1:35	Lunch Break
Penetration Rates			0:07	1:08	0:15	0:05	1:35		
13	52'	13:21	13:22	13:23	13:24	13:26	13:26	0:05	
Penetration Rates			0:01	0:01	0:01	0:02	0:05		
14	56'	13:31	13:34	13:38	13:40	13:44	13:44	0:13	
Penetration Rates			0:03	0:04	0:02	0:04	0:13		
15	60'	13:50	13:54	13:57	14:00	14:04	14:04	0:14	
Penetration Rates			0:04	0:03	0:03	0:04	0:14		
16	64'	14:06	14:07	14:09	14:11	14:13	14:13	0:04	
Penetration Rates			0:01		0:02	0:02	0:07		
17	68'	14:15	14:17	14:21	14:24	14:26	14:26	0:11	
Penetration Rates			0:02	0:04	0:03	0:02	0:11		
18	72'	14:28	14:30	14:33	14:35	14:47	14:47	0:19	Stop Work on 2/16
Penetration Rates			0:02	0:03	0:02	0:12	0:19		
19	76'	8:35	8:48	8:56	9:01	9:06	9:06	0:31	
Penetration Rates			0:13	0:08	0:05	0:05	0:31		
20	80'	9:10	9:13	9:16	9:17	9:19	9:19	0:09	
Penetration Rates			0:03	0:03	0:01	0:02	0:09		
21	84'	9:22	9:25	9:26	9:28	9:30	9:30	0:08	
Penetration Rates			0:03	0:01	0:02	0:02	0:08		
22	88'	9:32	9:35	9:38	9:41	9:45	9:45	0:13	
Penetration Rates			0:03	0:03	0:03	0:04	0:13		
23	92'	9:47	9:54	9:56	9:58	10:01	10:01	0:14	
Penetration Rates			0:07	0:02	0:02	0:03	0:14		
24	96'	10:04	10:07	10:10	10:13	10:16	10:16	0:12	
Penetration Rates			0:03	0:03	0:03	0:03	0:12		
25	100'	10:14	10:22	10:25	10:27	10:31	10:31	0:06	
Penetration Rates			0:08	0:03	0:02	0:04	0:17		
26	104'	10:33	10:35	10:39	10:41	10:43	10:43	0:10	
Penetration Rates			0:02	0:04	0:02	0:02	0:10		
27	108'	10:47	10:49	10:50	10:52	10:55	10:55	0:08	Stop Work on 2/17

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5004	*WELL NUMBER*: N/A	*REPORT NUMBER*: 4	*DATE*: 2-16-06
CONTRACT NUMBER:	*START CARD NO*: A107303	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Set up, start driving for Vista test hole C5004,	*REFERENCE*:	*LOCATION*: Vista Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	72

BORING DEPTH (include sampling depth):
C5004: 0 to 72 ft

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME
Wind Issues
0 Hours

WEATHER CONDITIONS (373-2716)
Cold, sunshine, Cold, 7mph wind from North

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: O. Amos (Proj. Lead)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	In Office discuss plans for Vista test.
6:30	07:00	Travel to site,
07:00	08:30	Collect equipment.
08:30	10:00	Travel rig to Vista site.
10:00	11:00	Set up rig, lay out site and support equipment.
11:00	12:00	Drive to 49'.
12:00	13:00	Lunch
13:00	15:00	Drive to 72'. Problems with broken pin clips.
15:00	16:00	Clean up and secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shaglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Zyl O. Amos

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5004	*WELL NUMBER*: N/A	*REPORT NUMBER*: 5	*DATE*: 2-17-06 Friday
CONTRACT NUMBER:	*START CARD NO*: A107303	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Set up for Vista test hole C5004,	*REFERENCE*:	*LOCATION*: Vista Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	72 ft	108 ft

BORING DEPTH (include sampling depth):
C5004: 72' – 108'

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Cold, sunshine, Cold, 7mph wind from North. –11 degrees wind chill!

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: O. Amos (Proj. lead)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00		Meet at Office and discuss daily operations.
	07:00	Pick-up supplies.
07:00	08:30	Collect supplies equipment, Hold POD.
08:30	11:00	Continue driving from 72' to 108'
11:00	12:00	Lunch, Kelly leaves for respirator training.
12:00	16:00	Load hydrostar pipe and support supplies to be cut at Bluestar on Monday. Secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David F. Shaglio for

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5004	*WELL NUMBER*: N/A	*REPORT NUMBER*: 6	*DATE:* 2-20-06 Monday
CONTRACT NUMBER:	*START CARD NO*: A107303	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Set up for attempting sample at Vista test hole C5004	*REFERENCE*:	*LOCATION*: Vista Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5004:

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Warm, nice day.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA
LICENSE #: 1976, OTHER

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	07:30	Meet at office discuss plans for making key rod removal tubing using hydrostar pipe and support equipment required. PRESIDENTS DAY NO FIELD SUPPORT AVAILABLE!
07:30	11:30	Take rods to Bluestar yard have them cut and threaded make landing plates and support equipment for sampler key removal and tip knock out rod.
11:30	12:00	Lunch
12:00	16:00	Continue work on key rods and support equipment.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglin for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5004	*WELL NUMBER*: N/A	*REPORT NUMBER*: 7	*DATE:* 2-21-06 Tuesday
CONTRACT NUMBER:	*START CARD NO*: A107303	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Back pull rods and attempt to sample Vista test hole C5004.	*REFERENCE*: N/A	*LOCATION*: Vista Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5004: 104' – 0', Drive sampler to 40' stopped.

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Warm, Nice day. Slight winds.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: O. Amos (Proj. Lead)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Meet at office discuss plans. Worley drive to mask station. Worley and Repko have Respirator training at 7:30 to noon. Training completed at 11:00 traveled to site to support operation.
06:30	07:00	Kelly travels to site.
07:00	07:30	Meet bluestar helper
07:30	11:30	Pull 104' of rods
11:30	12:00	Lunch
12:00	14:00	Attempt to drive sampler. Stopped at 40' would not drive any farther.
14:00	14:15	Discussed issues, possible sampler key released? Rod became bent? Tip is crushed? Decided to back pull sampler. Ran e-tape to see if we could feel rod pushed out of sampler could not tell.
14:15	14:30	Requested HPT coverage to back pull. HPT arrived informed he had to leave at 14:30. Shut down field operations.
14:30	15:30	Secured rig and site. Transported control box to C-farm trailers to replace foot clamp switch. Reports
15:30	16:00	Travel to Office

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglie for

REVIEWED BY: Olin Amos
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: O. Amos

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5004	*WELL NUMBER*: N/A	*REPORT NUMBER*: 8	*DATE:* 2-22-06 Wednesday
CONTRACT NUMBER:	*START CARD NO*: A107303	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Pull sampler and inspect for Vista test hole C5004,	*REFERENCE*:	*LOCATION*: Vista Site	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): C5004: Sampler has been driven to 40'. Back pulled sampler and add 25 gallons cement grout.

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Cold, sunshine, Cold, 7mph wind from North

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA
LICENSE #: 1976, OTHER: O. Amos (Proj. Lead)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	06:30	Meet at office discuss plans for removing sampler and identify failure.
06:30	07:00	Crew travel to C-farm. Collect equipment.
07:00	07:30	Arrive at vista site review plans with HPT.
07:30	09:00	Back pull sampler H PT surveyed pipe and sampler and contents NO Radiological contamination.
09:00	09:45	Spoke to Harold for previous probe depths. D. Skoglie was reached and a description of the Sampler failure was relayed. He instructed us to Move the rig off-site to the Pipeyard wash pad for cleaning and to fill the probe hole with cement from surface.
09:45	11:00	Moved rig and rods to the Pipeyard wash pad.
11:00	13:00	Took 8-T pump rig and cement, to collect water to grout probe hole. Added 15 gallons ran out of cement and water.
13:00	13:30	Lunch
13:30	15:00	Collect more cement and water to continue grouting. Completed decommissioning with 25 gallons total
15:00	15:30	Complete reports.
		NOTE: HHU Maintenance 2/23-3/6.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David F. Skoglie for

REVIEWED BY: Olin Amos
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: O. Amos

APPENDIX I

DTS-DOW-016, DESCRIPTION OF WORK: DIRECT PUSH ANGLE HOLE EXPLORATION 241-C-152 DIVERSION BOX, REV. 1

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DTS-DOW-016
Revision 1

DESCRIPTION OF WORK: DIRECT PUSH ANGLE HOLE EXPLORATION 241-C-152 DIVERSION BOX

K. D. Reynolds
M. G. Gardner

March 2006

Prepared for CH2M HILL Hanford Group, Inc.

by

Sampling and Well Services
Duratek Technical Services
Richland, Washington

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Figure 2. C-152 Diversion Box Vehicle Route Map for Direct Push Locations. 6
Figure 3. C-152 Area Map—Push Locations. 7

TABLE

Table 1. Push Location C Number Coordinates and Direction. 4
Table 2. Push Location Target Angle and Depth (approximate). 4

TERMS

CH2M HILL	CH2M HILL Hanford Group, Inc.
DOE	U.S. Department of Energy
DTS	Duratek Technical Services
ES&H	Environmental, Safety, and Health
ID	inside diameter
OD	outside diameter
RCRA	*Resource Conservation and Recovery Act of 1976*
RPP	River Protection Project
Well ID	Well identification number

DTS-DOW-016, Rev. 1

DESCRIPTION OF WORK: CONE PENETROMETER INVESTIGATION 241-C-152 DIVERSION BOX

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) assigned the River Protection Project (RPP) Single-Shell Tank Program the tasks of transferring waste from the Single-Shell Tanks to Double-Shell Tanks, and developing and implementing a strategy to retrieve Single-Shell Tank and Miscellaneous Underground Storage Tank waste. In support of the eventual retrieval of this waste, the Single-Shell Tank Program Vadose Zone Project was given responsibility for collecting and providing sub-surface data from the single-shell tank farm facilities. This data is intended to provide an understanding of the distribution and movement of contaminants in the vadose zone under and adjacent to the tank farms. Subsequently, a work plan was prepared to collect field characterization data in and near Waste Management Area C. This planned activity is intended to support decision-making relative to DOE/RL-99-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*. RPP-16608, *Site-Specific Single Shell Tank Phase 1 RCRA Facility/Corrective Action Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U*, was necessary to identify and plan characterization efforts as part of DOE/RL-99-36.

Documented in the addendum for Waste Management Areas C, A-AX, and U are the data requirement goals identified through a data quality objective process. The outlined goals include the tasks, project responsibilities and schedules for the characterization efforts. A borehole was selected to characterize the vertical extent of a pipeline leak near the 241-C-152 Diversion Box. A series of direct push probe holes using a Hydraulic Hammer rig was completed in the summer of 2005 near the 241-C-152 Diversion Box to determine the concentrations and lateral extent of the contaminant plumes, since the pipeline leak had a high cesium-137 activity. These investigations were conducted in accordance with DTS-DOW-013, *Cone Penetrometer Investigation 241-C-152 Diversion Box,* Rev. 0. Evaluation of the data collected during the direct push investigation indicated only a minor amount of mobile contamination constituents had migrated from beneath the concrete cover placed over the leak area. Therefore, the planned characterization borehole was deferred and angle direct push probes were planned to better define the lateral and vertical extent of contamination below the pipeline leak.

The purpose of this description of work is to define the methodology to be utilized and actions for performing the angle direct push activities. These are the activities:

- Identify the locations and push angles near 241-C-152 Diversion Box.
- Identify procedures to be utilized during direct push operations.
- Identify geophysical information-gathering tools and methodologies.
- Identify sampling instructions.

- Provide push (exploratory) and sampling hole tracking, decommissioning and identification instructions.

Section 8.0 contains the pertinent references for procedures and requirements necessary for guidance of this scope of work. The collection of sediment samples at prescribed intervals is a portion of the scope included. The following sections describe the planned activities and methodologies utilized to identify push locations and operations. This document is intended to be included as an attachment to Tank Farm Work Instruction CLO-WO-005-002460, *241-C Vadose Project Angle Probe Push,* which details tank farm operations required for support of the work scope.

This work scope will be completed utilizing a hydraulic hammer probe driving system mounted on a tractor-type carrier. This unit was utilized to collect the data from the previous investigations and is capable of driving a probe at multiple angles.

1.1 241-C-152 BACKGROUND

The 241-C-152 Diversion Box is located in the northwest corner of the 241-C Tank Farm. This valve control and pipe system was designed to route waste liquids from the facilities to individual tank runs and to control the pumping of liquids between tanks and from tanks to reprocessing facilities. In 1969 line V-122 adjacent to the 241-C-152 Diversion Box is documented to have leaked approximately 9,842 L (2,600 gal) of B Plant waste during a transfer. Information documenting the release and data gathered during a subsequent field investigation are contained in the Unplanned Release (UPR-200-E-82). It was estimated that during the release approximately 378 L (100 gal) of the 9,842 L (2,600 gal) were lost from the broken/failed pipe and surfaced near the valve box structure. This contaminated surface was covered with clean gravel and subsequently covered with cement. Calculations indicate that 11,300 Ci of Cs-137 were lost to the soil during the release. Calculations based on the samples recovered during the field investigation indicate that the maximum concentration in the soil was 550 μCi/g at approximately 3.7 m (12 ft) below the original surface grade. The Unplanned Release Report also describes a "caliche" or moisture-retarding layer approximately 15.2 cm (0.5 ft) in thickness located 3.9 to 4.3 m (13 to 14 ft) below the original ground surface. Regional stratigraphic analysis and facies studies of Hanford-related geology indicate that the described caliche is more likely a shallow subsurface paleosol (a soil development horizon rich in calcium carbonate that became buried in subsequent flood gravel and/or aeolian sand deposition). The areal extent of this fluid-retarding layer is not documented.

2.0 METHODOLOGY

The method selected to outline the vertical and horizontal extent of contamination is a hydraulic hammer-driven direct push system mounted on a tractor-type carrier. For this application, points (locations) for investigation (exploration) are selected through an iterative process as outlined

below. At the locations selected, an exploratory push will be attempted to a target depth as specified in Table 2. These are approximate depths and actual depths driven may be altered at the direction of the CH2M HILL Hanford Group, Inc., (CH2M HILL) Technical Representative or by refusal (as defined by the operating directions and/or procedures of Duratek Technical Services [DTS]). The exploratory push will be conducted with fixed tip 6.4 cm (2.5 in.) outside diameter (OD), 4.45 cm (1.75 in.) inside diameter (ID) push tubing (rods). During the process of driving the probe, a down-hole Gyro survey will be run at varying depths and at total depth to track and document the direction of the probe. Also, a Bismuth Germanium Oxide and a neutron moisture gauge will be deployed inside the tubing to gather data for investigation of the sediments surrounding the push rods at intervals determined by the CH2M Hill technical representative. DTS and CH2M HILL technical personnel will review the field data; and, if conditions are appropriate, a sample will be collected prior to advancing the probe.

If no significant contamination or geologic features of interest are identified from field-derived data, it is at the CH2M HILL Technical Representative's discretion to choose not to sample and to continue to advance the probe to the next investigation interval. If a sample is to be collected, the fixed tip probe will be extracted and a 6.4 cm (2.5-in.) OD x 4.45 cm (1.75-in.) ID sampling and push rod system will be deployed for sample collection. When the sampling push achieves the selected target depth, a 0.457 m (1.5-ft) long x 4.22 cm (1.66-in.) OD x 3.51 cm (1.38-in.) ID sample collection will be attempted, and the sample rods withdrawn. The soil sample will be packaged and transported to the selected laboratory for analysis. It is possible that multiple samples will be taken within a single push hole. Sampling will be conducted per the CH2M HILL Technical Representative. Once the probe hole reaches maximum depth and all data are collected, the exploratory push hole will be decommissioned per applicable WAC 173-160 requirements (e.g., filled with cement grout as required) as the push tubing is extracted. The direct push carrier will be either repositioned for the second angle push at the current location or moved to the next predetermined and mapped location (See Figure 3).

3.0 PUSH LOCATIONS

Three push locations are identified in the vicinity of the 241-C-152 Diversion Box within the C-Tank Farm (See Figure 3). There will be two pushes at different angles conducted at each location (see Table 1 and Table 2). These locations were selected through an iterative process utilizing ground-penetrating radar scan data and as-built infrastructure drawing reviews. The two data sets were compared and sites for the push locations were selected based on the highest level of confidence achievable on review of specific locations and ground scan trace comparisons. The coordinates of the locations determined from the global positioning satellite and generated grid mapping utilized for the ground-penetrating radar operations and drawings review were plotted on Computer-Aided Design drawings. These coordinates will be located in the field by use of global positioning satellite instrumentation. The direction (Azimuth) of these pushes is indicated in Table 1. Push locations will be documented on Well Information Reports/Field Activity Reports/Field Logbooks. In addition to the coordinate position of the probe location, the documentation will contain the push depth, geophysical log suite conducted,

volume of material utilized for decommissioning purposes 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) As each push rod length is added to the string during advancement, the length will be measured and recorded on the applicable field documentation sheet. The length will be recorded to the nearest tenth of a foot.

All push location activities will be tracked and documented on Field Activity Reports or Field Logbooks by referencing the Well identification number (Well ID) provided in Table 1 and Figure 3. Samples collected will be identified with Well ID number and depth collected.

Table 1. Push Location C Number Coordinates and Direction (from vertical).

Location	Well ID Number	Northing	Easting	Azimuth
1	C 5104	N 136546.87	E 575052.00	224°17′02″
2	C 5105	N 136546.06	E 575051.21	224°17′02″
3	C 5106	N 136522.17	E 575045.73	314°25′17″
4	C 5107	N 136522.66	E 575045.23	314°25′17″
5	C 5108	N 136528.23	E 575026.17	68°11′55″
6	C 5109	N 136528.49	E 575026.82	68°11′55″

Table 2. Push Location Target Angle and Depth (approximate).

Location	Well ID Number	Angle (Degrees From Horizontal)	~ Depth (in ft)	~ Pipe Run Length (in ft)
1	C5104	45	76	44
2	C5105	30	42	67
3	C5106	60	77	59
4	C5107	45	42	89
5	C5108	60	57	83
6	C5109	45	31	107

Figure 1. General Location Map.

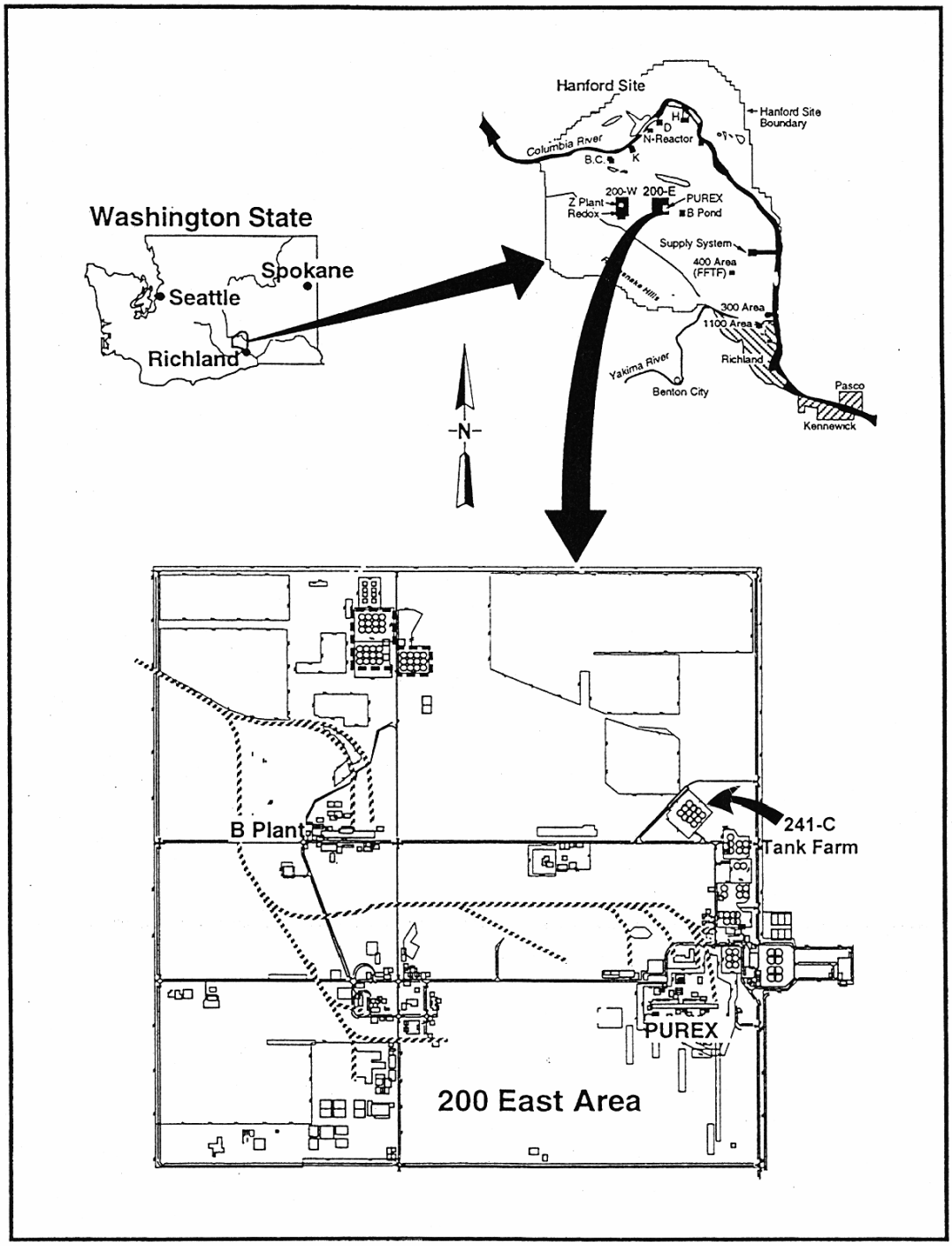

Figure 2. C-152 Diversion Box Vehicle Route Map for Direct Push Locations.

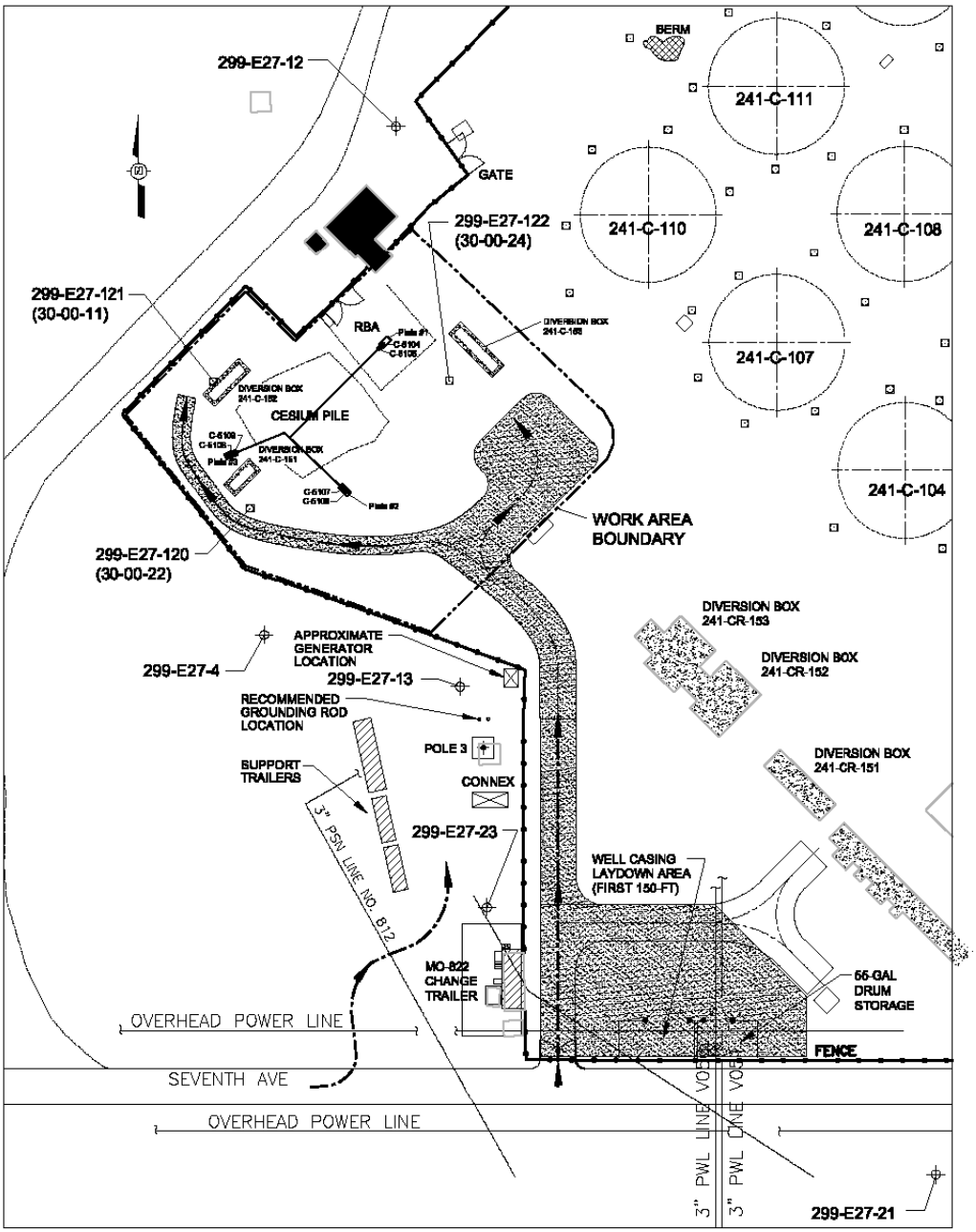

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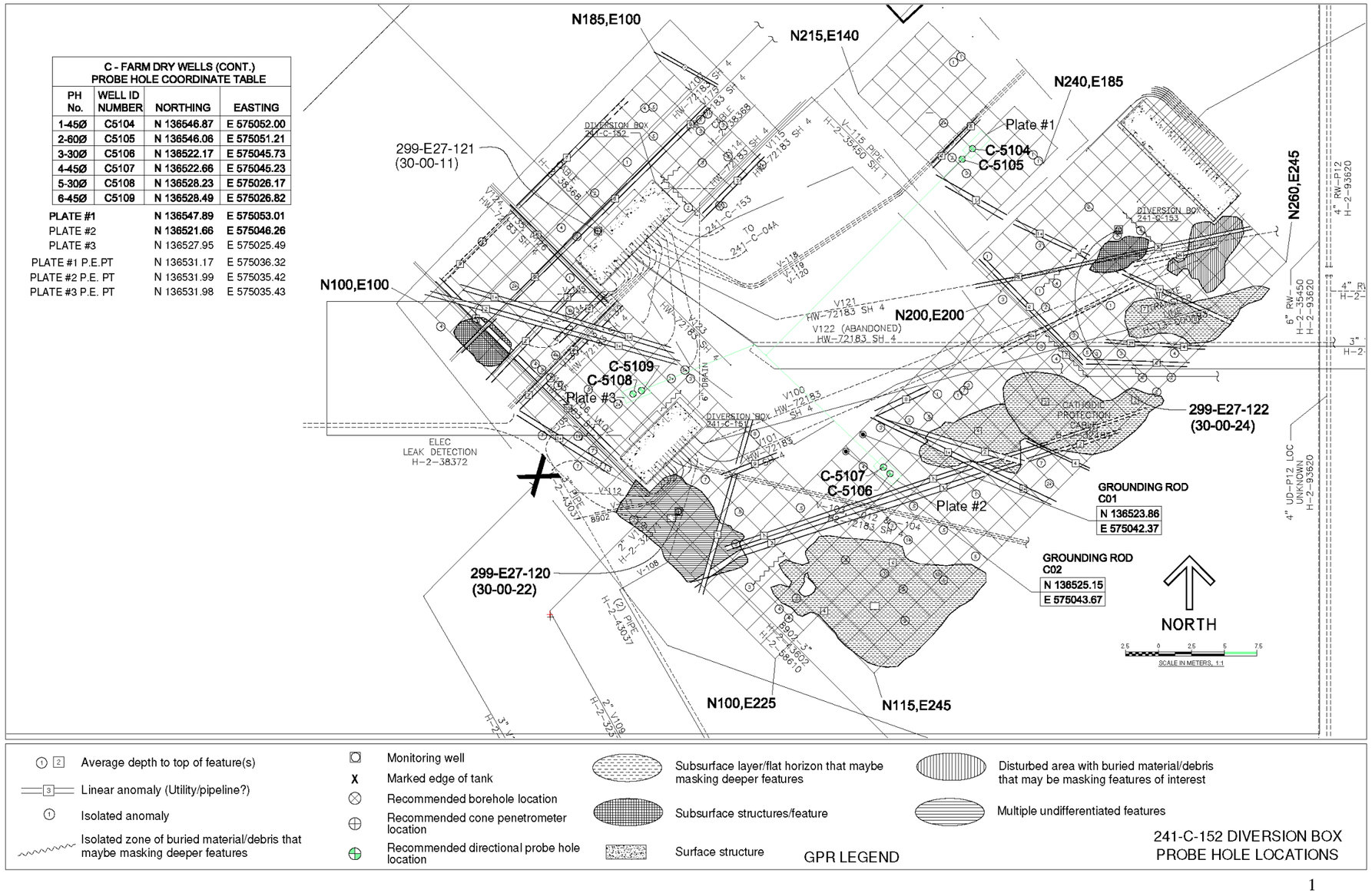
Figure 3. C-152 Area Map—Push Locations.
(Coordinates are from vertical.)



C - FARM DRY WELLS (CONT.) PROBE HOLE COORDINATE TABLE			
PH No.	WELL ID NUMBER	NORTHING	EASTING
1-45Ø	C5104	N 136546.87	E 575052.00
2-60Ø	C5105	N 136546.06	E 575051.21
3-30Ø	C5106	N 136522.17	E 575045.73
4-45Ø	C5107	N 136522.66	E 575045.23
5-30Ø	C5108	N 136528.23	E 575026.17
6-45Ø	C5109	N 136528.49	E 575026.82
PLATE #1		N 136547.89	E 575053.01
PLATE #2		N 136521.66	E 575046.26
PLATE #3		N 136527.95	E 575025.49
PLATE #1 P.E.PT		N 136531.17	E 575036.32
PLATE #2 P.E. PT		N 136531.99	E 575035.42
PLATE #3 P.E. PT		N 136531.98	E 575035.43

1

4.0 WORK TASKS

4.1 SITE SETUP

The direct push equipment will be mobilized into the tank farm and set up over the pre-selected and marked locations (See Figures 2 and 3 above). A pre-survey of the carrier and equipment will be conducted prior to tank farm entry. As noted above, ground-penetrating radar scans and as-built drawing reviews and comparisons have been completed for proper selection of the push points. The direct push equipment is a hydraulic hammer and mast that are mounted on a mobile tractor (back hoe type) unit. A drive plate with interchangeable drive angle guide tubes will be secured to the ground at the select location using six anchor rods driven to approximately 1.2 m (4 ft) in depth. Support equipment to be utilized 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.

To avoid surface structures and conform to tank farm routing restrictions and procedures, a path will be mapped into the tank farm from the entry point to the mapped push locations (See Tank Farm Work Instruction CLO-WO-05-002460, and Figure 2 above). A spotter will be required to guide the equipment onto location, and they will also be responsible for subsequent movement of the unit to the listed push locations. The forklift must be moved on the prescribed route.

4.1.1 Contamination Control

Tank farms radiological control technicians and nuclear chemical operators will be onsite to support work activities. Contamination control measures will consist of laying spill protection material beneath the equipment (when required), placing rubber matting and plastic sheeting on and around the carrier and drive system (where deemed necessary), and restricting unnecessary personnel from entering the site. These measures will be implemented upon mobilization of the direct push equipment to the Hanford Site and prior to and during tank farm activities. 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 placed into the hole by use of the hydraulic hammer system. A drive plate with interchangeable drive angle guide tubes will be secured to the ground at the select location using six anchor rods driven to approximately 1.2 m (4 ft) in depth. The guide tubes are set at pre-selected angles of 30, 45 and 60 degrees from horizontal and can be removed or added to accommodate the required drive angle. Global positioning satellite surveys will be utilized to properly align and orient the drive plate to the preselected coordinates for the direction of the push. The purpose of the drive plate and guide tubes is to stabilize the hydraulic hammer unit at the selected location and ensure the drive rods are driven and held at the prescribed angle and direction of penetration. The push locations have

been positioned to avoid impacting known/mapped structures. As the mapped points are investigated, all due caution and careful observation of the push advance rates and resistance will be observed to preclude damage to any tank farm infrastructures should the as-built drawings be in error. If rod advance indicates that obstructions are present, push advance will stop, the direct push unit and work area will be placed in safe condition and the Vadose Project Engineer (Harold Sydnor) or his designee will be notified. A gyro will be run to determine current orientation of drive tubing in relation to known subsurface structures. If during push operations the push point is deemed to be "at refusal" as defined by the operating directions and procedures of DTS, the depth will be noted in the Field Activity Report/Field Logbook and the next sequential task as defined in the Methodology section will be performed. All direct push activities will conform to the manufacturer's operating manual and applicable procedures that relate to the specific phase of work. As the push rods and/or sampling tube assembly are extracted from the exploratory holes, the onsite health physics technician will monitor for radiological contamination. Any decontamination required will be performed by CH2M HILL tank-farm-qualified Nuclear Chemical Operators. The sealing requirements for decommissioning of the direct push holes are defined in the appropriate sections of WAC-173-160, "Minimum standards for construction and maintenance of wells."

4.3 GEOPHYSICAL LOGGING

During advancement and at target total depth (or point of refusal) of the exploratory investigations, Pacific Northwest Geophysics will conduct logging operations to gather geophysical information. The depths and logging suites for these investigations will be selected by the CH2M HILL Technical Representative during advancement activities. The following logging suites will be utilized.

1. Fast scan Bismuth Germanium Oxide gross gamma logging (may also use Sodium Iodide or Geiger Mueller for the gross gamma logging).
2. Extended count time spectral (Bismuth Germanium Oxide) gamma logging for selected intervals as deemed necessary.
3. Neutron-Moisture.
4. Borehole Gyroscope.

Logging data will be collected from the total depth to surface. The logging analyst, DTS site personnel and the CH2M HILL Vadose Project Engineer will review the field log data. Based on the log data sets, a determination will be made whether to collect a sample from that interval or to proceed to the next selected depth for investigation. Logging activities will be conducted in accordance with applicable Pacific Northwest Geophysics procedures and the Pacific Northwest Geophysics Quality Assurance and Data Management Plans. The borehole gyroscope logging activities will be conducted in accordance with applicable DTS procedures and Quality Assurance requirements.

5.0 SAMPLING

5.1 SAMPLING PROCESS

When the CH2M HILL Technical Point of Contact has selected a sampling interval for investigation, the fixed tip drive tubing will be removed from the hole and a 6.4 cm (2.5-in.) OD x 4.45 cm (1.75-in.) ID sampling and push rod system will be deployed for sample collection. These sample tubes will be driven in the existing hole and at the depth selected by review of the geophysical information. Two 4.22 cm (1.66-in.) OD x 3.89 cm (1.53-in.) ID x 22.86 cm (9-in.) long stainless steel liners contained within a rod-delivered sampling system will be advanced through the selected depth interval. The sampler will be retrieved to surface and the liners removed and capped.

After retrieval of the samplers 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 exceeds the allowable dose rates per the Radiation Work Permit, the samplers will be placed in transportation containers and opened under controlled conditions at the designated laboratory. All applicable DTS procedures, U.S. Environmental Protection Agency/*Resource Conservation and Recovery Act of 1976* (RCRA) protocols and Radiation Work Permit restrictions and requirements will be followed for this activity. Each sample will be clearly labeled with the push location number (well ID), unique sample number, date and time of collection and depth from which the material was retrieved. A chain of custody, as per DTS-referenced procedures, will be completed for all sediment samples and equipment rinseate fluids collected and transported to the assigned laboratory for analysis. All referenced applicable DTS sampling procedures will be adhered to during soil and rinseate sampling operations.

Following retrieval of the sample and sampling assembly, if the probe hole is to be advanced for additional data collection, the hole will be reentered with either a fixed tip or sampler attached to the push rods and advanced to the next investigation interval. Upon retrieval of all samples and/or data collection, the probe hole will be decommissioned.

5.2 CLEANING

For quality control purposes, all materials (e.g., sample liners, material retaining baskets [finger baskets], sample caps) utilized for the performance of sampling activities will be cleaned utilizing U.S. Environmental Protection Agency guidelines/specifications as referenced in RCRA. Materials utilized for push advance purposes (e.g., push rods, tips) will be high-pressure washed utilizing an approved non-phosphate cleaner. The push materials will be visibly clean of dirt, grease and other possible contamination, which would cause potential cross-contamination of retrieved samples. After cleaning, the materials will be protected from unwanted contamination from surface and push operation-related chemicals by covering with plastic or other acceptable materials and tracked by use of cleaning certification documentation.

The stainless steel sampler liners, sampler drive shoes, drive tips and retainer baskets of the samplers will be cleaned using standard U.S. Environmental Protection Agency/RCRA protocol methods in accordance with DTS-SSPM-001, *Sampling Services Procedures Manual,* Section SP 2-5, "Laboratory Cleaning of Sampling Equipment."

5.3 RINSEATE SAMPLES

An equipment rinseate blank is required for analysis purposes. This will consist of one rinseate sample from one cleaned sampler and liner set before first use. Details of the appropriate volume, container and preservation requirements have been provided by the CH2M HILL Technical Point of Contact to the laboratory and DTS sampling personnel.

5.4 EXPLORATION PUSH HOLE DECOMMISSIONING

Applicable *Washington Administrative Code* requirements contained in *Minimum Standards for Construction and Maintenance of Wells,* WAC 173-160 (Ecology 1998) will be utilized to control and guide actions for decommissioning of the exploratory probe holes. As activities progress, each probe hole will be filled with bentonite, a bentonite slurry and/or grout (cement/bentonite mixture of materials) during the push rod extraction process.

6.0 ENVIRONMENTAL, SAFETY, AND HEALTH PROGRAM

The primary concern for DTS and the client (CH2M HILL) is the safety of personnel assigned to perform activities within the 241-C Tank Farm facility. The C Tank Farm is noted for odor and/or vapor emission potential, and some portions of the fenced area are under entry restrictions due to potential worker exposures. To address these issues and assure that all DTS, CH2M HILL, and applicable *Occupational Safety and Health Act of 1970* safety and health requirements are applied and adhered to during the field operations, a C Tank Farm-specific Health and Safety Plan has been prepared. See *C Tank Farm/Tank Farm Vadose Zone Project Health and Safety Plan* (DTS 2003). In addition to the Health and Safety Plan, a job-specific Activity Hazard Analysis outlining the specific activity hazards and the mitigation methodologies has been prepared. The documentation governing decommissioning activities, sampling, and the operation of the hydraulic hammer unit (AHA-06-002-CHG, *C Farm Area Hydraulic Hammer Rig Operations,* Rev. 0 or most current revision) is included as a portion of the CH2M HILL Tank Farm Work Package.

Both DTS Safety and CH2M HILL Tank Farm Industrial Hygiene and Safety personnel will survey the job site for safety and health compliance. DTS personnel and safety representatives will be onsite during all drilling, sampling and decommissioning/construction activities to ensure compliance with the guidance outlined in the Activity Hazard Analysis.

DTS 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 DTS employees but also to DTS subcontractors. Job site safety rules and procedures, radiological control requirements and procedures, as well as WAC 173-160, as amended, *Occupational Safety and Health Act of 1970* standards and client-identified standards will be observed. These requirements are communicated to everyone associated with the project (visitors included) using the DTS Activity Hazard Analysis. The Activity Hazard Analysis is part of the DTS Environmental, Safety, and Health (ES&H) Program.

ES&H 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 DTS 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 DTS Environmental, Safety and Health 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.
- All 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 are established which, if properly implemented, provide 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 and unplanned releases and exposures.

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 DTS-QAM-001, *Quality Assurance Manual*, and the DTS-QAP-001, *Quality Assurance Procedures*. All work will be performed in accordance with approved procedures and this work plan.

8.0 REFERENCES

CLO-WO-05-002460, *Tank Farm Work Instruction, 241-C Vadose Project Angle Probe Push*, CH2M HILL Hanford Group, Inc., Richland, Washington.

AHA-06-002-CHG, *C Farm Area Hydraulic Hammer Rig Operations,* Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.

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

DOE/RL-99-36, 1999, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DTS-DOW-013, *Cone Penetrometer Investigation 241-C-152 Diversion Box,* Rev. 0, Duratek Technical Services, Richland, Washington.

DTS-QAM-001, *Quality Assurance Manual*, Duratek Technical Services, Richland, Washington.

DTS-QAP-001, *Quality Assurance Procedures,* Duratek Technical Services, Richland, Washington.

DTS-SSPM-001, *Sampling Services Procedure Manual*, SP 2-5, "Laboratory Cleaning of Sampling Equipment," Duratek Technical Services, Richland, Washington.

RPP-16608, 2004, *Site-Specific Single Shell Tank Phase 1 RCRA Facility/Corrective Action Measures Study Work Plan Addendum for Waste Management Areas C, A-AX, and U*, Rev. 1, CH2M HILL Hanford Group, Inc., Richland, Washington.

WAC-173-160, "Minimum standards for construction and maintenance of wells," *Washington Administrative Code*, as amended.

DTS, 2003, *C Tank Farm/Tank Farm Vadose Zone Project Health and Safety Plan*, Duratek Technical Services, Richland, Washington.

Ecology, 1998, *Minimum Standards for Construction and Maintenance of Wells*, WAC 173-160, Washington State Department of Ecology, Olympia, 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.

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APPENDIX J

DRILLING AND SAMPLING DAILY WORK RECORDS (ANGLE BOREHOLES)

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Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.:	*WELL NUMBER*: N/A	*REPORT NUMBER*:	*DATE*: 2-23-06
CONTRACT NUMBER:	*START CARD NO*: A107303	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Wash rig, take to ERDF for Service, Wash rods	*REFERENCE*:	*LOCATION*:	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5004: Sampler has been driven to 44'. Back pulled sampler and add 25 gallons cement grout.

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 8.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Warm with extreme winds and dust! Very Bad

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: O. Amos (Proj. Lead) _____, (HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Meet at office discuss plans for cleaning and moving rig to ERDF.
06:30	07:30	Crew travel to C-farm. Collect PPE with Snook travel to SMURF to get blues.
07:30	10:00	Set up steam cleaner start cleaning rig. Steam cleaner not pressuring up. Tear down and repair. Rig cleaner.
10:00	11:00	Rig ready to go. Kelly goes to mock tank site to move stuff. Wait for D. Skoglie for oil.
11:00	11:30	Lunch
11:30	12:00	Search goggles for Kelly to drive rig.
12:00	13:15	Travel rig to ERDF. Weigh rig 18,900 lbs
13:15	13:30	Sign in go to service tent. Drop off rig and supplies
13:30	14:00	Go check on C5004 to see where cement is at (settled?)
14:00	15:00	Pick up stuff from Mock tank take to wash pad. Winterize steam cleaner.
15:00	15:30	Complete reports.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: Dave Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-19-06
SIGNATURE: Zp O. Am

Duratek Federal Services, Inc., Northwest 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*: 2-27-06
CONTRACT NUMBER: 24196	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: HHU MAINTENANCE AND WASH PIPE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Warm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Discuss planned daily activities.
06:30	07:00	Pick-up supplies and travel to C Tank Farm.
07:00	07:30	POD. Discuss steam cleaning pipe, moving pipe. Taking back hoe manual to ERDF. Getting aced and check on respirators.
07:30	08:00	Travel to ERDF deliver back hoe manual.
08:00	09:00	Travel to SMURF building check aces and respirator availability.
09:00	10:00	Transport Harold to C-farm to discuss entry for casing. Stand by for HPT to arrive. Discuss removing and surveying old casing and equipment from the farm. Use forklift to load pipe/haul to RBA have HPT smear pipe as it is rolled to Pipeyard forklift, then load pipe onto pipe-rack in RMA for final survey to release pipe.
10:00	11:00	Go to Pipeyard give John Auten 3 old square tip holders to be drilled for aluminum rivets, load large pipe racks on trailer and road forklift to C-farm
11:00	11:30	Lunch
11:30	13:00	Kelly and Mark pick up rest of rods and equipment at Mock tank site and haul to C-Farm and wash pad. Use fork lift and trailer to move angle hole plates.
13:00	14:30	Dress for farm, moved/smeared 19 joints of casing and 2 core barrels from farm and loaded on pipe rack in RMA
14:30	15:30	Fuel fork lift, rope off RMA for pipe racks, unload angle plates and ground plates.
15:30	16:00	Travel to Office

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shaglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest 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*: 2-28-06
CONTRACT NUMBER:	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: HHU MAINTENANCE. WASH PIPE	*REFERENCE*: DTS-DOW-O16	*LOCATION*: C-Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Overcast, cool winds 5-10 mph in am Wind up to 20 mph in pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Discuss daily operations.
06:30	07:00	Review equipment inventory.
07:00	09:00	Wait on operators and HPTs. POD. Discuss steam cleaning pipe, moving pipe. Getting aced and check on respirators K.Olson, M Repko last day for Mask fit. Worley has waste handling issues. Let M.Dorsey know today will not work for GPS points will try Thursday.
09:00	10:30	Wait for air bottles and Carrier air system for S. Snook
10:30	11:30	In Farm, move 17 pieces of 10' casing, pallet of misc. tools and heaters, pallet of bentonite. All casing removed and stored in RMA.
11:30	12:00	Lunch
12:00	15:30	Standby for wind. K. Olson, M Repko load surveyed casing on trailer and transport ot Pipeyard for storage.
15:30	16:00	travel to office

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest 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*: 3-1-06
CONTRACT NUMBER: 24196	*START CARD NO*:S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: HHU MAINTENANCE. READY EQUIPMENT.	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Overcast, cool winds 5-10 mph in am Wind up to 20 mph in pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	*TIME* TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Discuss daily operations.
06:30	07:00	Pick-up materials from pipeyard.
07:00	08:00	Meet at C-farm, discuss tent issues, survey casing and misc. equipment from RBA. Issue with trailer lights and connectors
08:00	10:00	Hpt surveys pipe and equipment in RBA Worley goes to shop to check on adaptors for trailer lights. Harold calls for MSDS info to Chad Esvfelt. Relay information.
10:00	11:30	J. Peschong and T Reigning arrive at pipe yard, discuss operations with Olin, Dave and I. D&D workers are in yard. M. Repko is trying to start steam cleaner, No spark no start. Call Dale, Marty and Skoglie to let them know of new lock on gate. Try to reach procurement about getting steam cleaner fixed.
11:30	12:00	Lunch
12:00	16:00	Crew works on C Tank Farm equipment.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: N/A	*WELL NUMBER*: N/A	*REPORT NUMBER*: 4	*DATE*: 3-2-06
CONTRACT NUMBER: 24196	*START CARD NO*:S27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: HHU MAINTENANCE. ATTEMPT TO RUN GPS	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Overcast, cool winds 5-10 mph in am Wind up to 20 mph in pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Discuss daily operations.
06:30	07:00	Equipment inspection.
07:00	08:00	Meet at C-farm, HPT arrives, No operators, talk with M. Dorsey about GPS after Umatilla paperwork. Discuss plans with HPT about entering farm later this morning or early afternoon to do GPS. Possible run forklift to get remaining pallets out.
08:00	10:00	Standby on GPS, work reports
10:00	10:30	Meet M.Dorey at C-farm, go get mask, racks and bottles and ace in. set up and mark stakes.
10:30	12:30	In farm GPS points for plates and holes. Take forklift in and move pallets of stuff out of farm.
12:30	13:30	Move pipe inside Pipeyard. HPTs leave.
13:30	16:00	Clean up, pick up, secure site and stand by.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Slaughter for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: N/A	*WELL NUMBER*: N/A	*REPORT NUMBER*: 5	*DATE*: 3-3-06
CONTRACT NUMBER: 24196	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Drill	
PURPOSE: HHU MAINTENANCE, SURVEY EQUIPMENT AND LOAD ON TRAILER	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Overcast, cool winds 5-10 mph in am Wind up to 20 mph in pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:30	Discuss daily operations.
06:30	09:00	Crew travel to Case dealer to get transfer case oil for back hoe. Take to ERDF.
09:00	09:30	Meet at Pipeyard, discuss moving equipment from C-farm and storage issues. Need items moved from tent to conex box.
09:30	11:30	Meet HPT and operator. HPT surveys equipment from RBA. Load on trailer
11:30	12:00	Lunch
12:00	16:00	Haul trailer to Pipeyard, unload trailer and store materials and equipment in empty conex boxes. Move equipment from tent to conex boxes for storage. Fix up the shieve for gyro line.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglin for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: Zyl O-Cuna

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5408	*WELL NUMBER*: N/A	*REPORT NUMBER*: 6	*DATE*: 3-6-06
CONTRACT NUMBER: 24196	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: HHU MAINTENANCE. MOVE ANGLE PLATES INTO C TANK FARM AND SET-UP ON PLATE 3 POSITION.	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0
TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Overcast, cool winds 5-10 mph in am Wind up to 20 mph in pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	06:45	Meet at office, discuss possible B-plant tank investigations
06:45	07:15	Travel to site.
07:15	08:00	Stand-by for word about B-plant tank investigation. Received word from Sydnor "No, not for several months."
08:00	09:00	Let K. Olson know about moving plates into farm, Operator and Kelly go get mask racks and bottles
09:00	09:30	Tried to get mask and rack for Worley. H. Sydnor calls and say's he and Auten are at Pipeyard.
09:30	10:30	Met Auten and Sydnor at Pipeyard start reviewing what he has. Find sample rod does not pass through sample head. John took sample rods back to shop to grind down.
10:30	11:30	Reviewed map and hole locations and which probe is driven first (C5408 first at 60 degrees). Once everyone understood plates were located and set out properly. Need to adjust for level just a little before they get nailed to ground.
11:30	12:00	Lunch. Called M. Dorsey about entering farm and collecting elevation information of locations later this week.
12:00	12:30	Discuss moving rig from ERDF. M. Repko leaves for physical mask fit.
12:30	13:30	Worked on getting a angle iron check guide to check rods for being straight.
13:30	15:30	Travel to ERDF to get rig and travel back to C-farm.
15:30	16:00	Secure site.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shogle for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5408	*WELL NUMBER*: N/A	*REPORT NUMBER*: 7	*DATE*: 3-7-06
CONTRACT NUMBER: 24196	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Drill	
PURPOSE: Prepare grid or form to level and set up plate on.	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Sunshine, 44 degrees, cool winds 5-10 mph in am Wind up to 20 mph in pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	07:00	Meet at office, discuss inventories, samplers and forms for leveling plates
07:00	07:30	Pick-up supplies at pipeyard.
07:30	09:00	Prepare forms for leveling plates
09:00	10:00	Operator leaves for bottles, crew for mask and racks.
10:00	11:30	Dress and enter farm. Lay out form, level and fill with sand. Covered with plastic and laid steel plates on plastic. 60 minutes camera crew arrived with DOE spokesperson, filmed plate alignment operation. Tried to slide plates to line up, every time plates were moved sand would shift and mess up the level. Plate set-up is evaluated.
11:30	12:00	Lunch
12:00	13:00	Discussed issues with plate decided to use a piece of plywood to lay on sand and slide plates on plywood.
13:00	13:30	Obtain plywood.
13:30	16:00	Go by office get copy of plate pattern. Take plywood to bluestar shop to cut.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoghe for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5408	*WELL NUMBER*: N/A	*REPORT NUMBER*: 8	*DATE*: 3-8-06
CONTRACT NUMBER: 24196	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Prepare grid or form to level and set up plate on.	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Farm	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE: N/A

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth): N/A

START TIME: 06:00
END TIME: 16:00
CONTRACTOR TIME: 0

TOTAL TIME: 10.0

DOCUMENTED DOWNTIME

Wind Issues

0 Hours

WEATHER CONDITIONS (373-2716)

Sunshine, 44 degrees, cool winds 5-10 mph in am Wind up to 20 mph in pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson , M. Repko, S. Worley, WA LICENSE #: 1976, OTHER: S. Snook, D. Dudley (Op.) J. Clayton, P. Templeton(HPTs)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	07:00	Meet at office for leveling plates
07:00	07:30	Travel to site.
07:30	08:00	Get mask and racks
08:00	09:00	Operator leaves for bottles.
09:00	09:30	Pre job discuss leveling plates with plywood on sand. Discuss electrical issues with yellow jackets. Electricians in farm lay out cord to Rudy-cart and layout yellow jackets
09:30	10:30	Dress and enter farm. Worley goes to Pipeyard to give Sydnor pipe and tip. Plate is set and level. Out of farm. Call M. Dorsey to get mask/rack.
10:30	11:00	Wait for M. Dorsey and GPS unit
11:00	11:30	Dress enter farm Complete elevation surveys for all three plate locations.
11:30	12:00	Lunch
12:00	16:00	Work at Pipeyard cleaning out tents.

REPORT BY: S.H. Worley
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglie for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C5109	*WELL NUMBER*: N/A	*REPORT NUMBER*: 8B	*DATE:* March 9 - 15, 2006
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: HHU STANDBY AND SUPPORT WORK	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 17		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0 ft	0 ft

BORING DEPTH (include sampling depth):
C5109: START: N/A
END: N/A

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716)

56F, mild breeze

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 10ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0 ft
Casing (2.5 in OD) stick up (end of shift)	= n/A ft
Total Casing (2.5 inch)	= n/a ft

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
Amos (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
		HHU Standby (March 8 through 15).

REPORT BY: D. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: Zll O-Amor

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 9	*DATE:* March 16, 2006 Thursday
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: Pre-job Safety Meeting, Mobilize and initiate set-up HHU STANBY	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	0.0 ft

BORING DEPTH (include sampling depth):
C5104: START: 0'
END: 0.0 BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716)

55F, mild wind, minimal rain

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0.0 ft
Total Casing (2.5 inch)	= 0.0 ft

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
Skoglie (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:30	Drop off materials at the 200 East pipeyard.
08:30	10:35	Pre-job Safety meeting @09:00. The PIC (Pat Howard) brings the Work Package and initiates the Pre-job meeting. The Project Manager (Mr. Harold Syndor) discusses the work package steps. Discussions were held on logging, transport of the Moisture probe (HPT/blue Card), Gyro surveys, locations of the borings and sample depths, and location of the sample table. Personnel attending the the Pre-job are as follows: S. Snook, H. Sydnor, K. Hulse, B. Mitchell, D. Dudley, M. Repko, K. Olson, P. Howard, J. Meisner, B. Randall, J. Hogan and D. Skoglie.
10:35	11:45	Personnel travel to the Smurf building and ACE. The RWP requires Fluor HGET. Mr. Olson cannot AC. Mr. Templeton contacts appropriate personnel and changes requirements. K. Olson will ACE.
11:45	12:30	Travel to C Tank Farm and take lunch.
12:30		The shop showed and checked air on the Back-hoe and supplied if needed.
		The electrical cord supporting the air monitors will repaired the 17th (on schedule).
		Mob Duratek's fork-lift and move sample table into the enclosure. Set up boundary's (CA) and area.
		The fork-lift was taken back to the Duratek yard.
	15:30	Mr. Kelly dropped off Ska-Pak and tried to ACE but no one was home.
15:30	16:30	Secure site.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 10	*DATE:* March 17, 2006 Friday
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: COMPLETING MOBILIZATION AND SET-UP HHU STANDBY	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	0.0 ft

BORING DEPTH (include sampling depth):
C5104: START: 0'
END: 0.0 BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716)

55F, mild wind, minimal rain, Lightning @ 15:15.

Bottom of 2.5 " OD casing (start of shift w/bk pull)	=	0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	=	0.0 ft
Casing (2.5 in OD) stick up (end of shift)	=	0.0 ft
Total Casing (2.5 inch)	=	0.0 ft

SAMPLE SUMMARY
N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
Skoglie (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00	09:00	Pick-up Masks and Racks at SMURF building. Plan of the Day (Safety topic: Electrical fires). Review maps and borehole locations.
09:00		Stage backhoe in RBA. Dress and enter C Tank Farm.
	10:30	Setting up to drive nails. Waiting on electricians.
10:30		Electricians will not show until PM according to PIC.
	11:30	Personnel review DOW.
11:30	12:00	Lunch
12:00		Work on enclosure. Electricians show @ 13:15. additional work will need to be completed prior to usage of the air monitor boxes. The electrical lines need to be replaced. Boxes (3) are taken to the electrical shop for repair.
		Enter Tank Farm and secure HHC .
	15:30	Mr. Kelly dropped off Ska-Pak and tried to ACE but no one was home.
15:30	16:30	Secure site.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 11	*DATE:* March 20, 2006 Monday
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: COMPLETING MOBILIZATION AND SET-UP	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: N/A		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	0.0 ft

BORING DEPTH (include sampling depth):
C5104: START: 0'
END: 0.0 BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716)

50F, mild breeze

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0.0 ft
Total Casing (2.5 inch)	= 0.0 ft

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
Skoglie (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
06:00		Pick-up Masks and Racks at SMURF building. Plan of the Day (Safety topic: Electrical Safety).
		No air sampler boxes until PM according to PIC. Electricians pushed to other work.
		Equipment release plan is an issue. States that oil, hydraulic oil and antifreeze needs to be sampled. CHG personnel working issues.
10:30	11:30	Sampler design is evaluated.
11:30	12:00	Lunch
12:00		Dress and enter Tank Farm to conduct equipment inspection.
		Air monitor boxes arrive and are installed in the Tank Farm.
	13:53	Release plan resolved. Fill caps will be taped.
13:53		Drive 6 nails to secure drive plate.
		Installed ange bracket for C5108 (60 degree).
	16:30	Exit Tank Farm and secure site.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 12	*DATE:* March 21, 2006 Tuesday
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: INITIATING DRIVING.	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 27.5		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	27.5 ft

BORING DEPTH (include sampling depth):
C5108: START: 0'
END: 27.5 BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716)

56F, mild breeze

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 27.5 ft
Casing (2.5 in OD) stick up (end of shift)	= n/A ft
Total Casing (2.5 inch)	= n/a ft

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
Skoglie (Site Safety/FTL)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
06:00	08:30	Pick-up Masks and Racks at SMURF building. Plan of the Day (Safety topic: Back-hoe operation).
08:30	09:54	Dress and enter Tank Farm. Set-up tooling. Align HHU. Change bottles.
09:54	10:29	Initiate driving @ 09:54 to 27.5 ft bgs @ 10:29.
10:29	10:56	Personnel come out to ready geophysical logging equipment.
10:56	11:45	Lunch NOTE: RWP will be reved to include the Neutron probe.
11:45	13:50	Personnel obtain source for the Moisture probe and re-ace.
13:50		Logging equipment and Mr. Randall (Pacific NW Geophysics) in Tank Farm. Rudy cart shut down @ 15:04. Personnel exit C Tank Farm.
		Logging equipment remains in farm.
	16:30	Secure site.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-03-06
SIGNATURE: [illegible]

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 13	*DATE:* March 22, 2006 Wednesday
CONTRACT NUMBER: RC6001	*START CARD NO*: S	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Pre-job Safety Meeting, Mobilize and initiate set-up	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	

REFERENCE MEASURING POINT: Ground Level

TOTAL SHIFT FOOTAGE:

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5104: START: 0'
END: 58.8' BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME

WEATHER CONDITIONS (373-2716)

55F, mild wind, minimal rain

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
O. Amos (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
7:00	8:00	On site pickup equipment and hold POD, Safety topics: weather and slips
8:00	9:30	Run Gamma log
9:30	11:00	Waiting on the source to rerun the moisture log, due to instrument malfuctions the depths on the log were off.
11:00	11:30	Lunch
1130	1300	Logging hole
1300	1330	The computer crashed so we had to log a portion of the hole
1337	1430	Pull rods
1430	1530	Out of hole, come out of the farm
1600	1630	Crew out of farm, Prepare to sample tomorrow
1630		End of shift

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 4-13-06
SIGNATURE: [illegible]

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 14	*DATE:* March 23, 2006 Thursday
CONTRACT NUMBER: RC6001	*START CARD NO*: S 27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Pre-job Safety Meeting, Mobilize and initiate set-up	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5108: START: 0'
END: 28' BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

WEATHER CONDITIONS (373-2716)

55F, mild wind, minimal rain

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
O. Amos (Site Safety/FTL)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
0700	0800	Helper is getting a whole body count, go to the yard and pickup tooling
0800	9:00	Waiting on the Samplers, Hold POD and safety meeting Topics: trips, slip, and falls
		Take sample at 28 feet and then remove and run heavy sampler to 66 feet
9:30	1015	Getting ready to enter C farm
1015	1035	Trip in the rods and the sampler
1035	1038	Drive Sampler
1038	1053	Run inner rods to remove keeper pin
1053	1105	Bottle change
1105	1122	Pull pin (can't get screwed into the keeper pin) Pull rods to see why
1138	1220	The threads on to bolt are damaged
1220	1250	Lunch
1250	1305	We took the and filed the end of the threaded bolt to a taper to try and guide itself into the keeper key. We also made a homemade stabilizer out of duck tape to try and help hold the rods straight
1352	1355	Drive sample from 28 to 30
1455	1540	Crew is out of the farm cleaning up
1630		End of shift

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: Zyle O. Amos

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 15	*DATE:* March 27, 2006 Monday
CONTRACT NUMBER: RC6001	*START CARD NO*: S 27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Pre-job Safety Meeting, Mobilize and initiate set-up	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5104: START: 28
END: 66' BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME

WEATHER CONDITIONS (373-2716)

minimal rain

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
O. Amos (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
0700	0830	Ace in, get equipment , waiting for a operator to return with the bottles
0930	1000	Enter C farm and get ready to run heavy duty sampler to 66 feet
1000	1106	Trip in the hole and drive samplerto 66 feet
1135		Lunch
1200	1330	Log well (gamma)
1330		Can't get the source to moisture log, will log tomorrow
1630		End of shift

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: O. Amos

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 16	*DATE:* March 28, 2006 Tuesday
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Pre-job Safety Meeting, Mobilize and initiate set-up	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5104: START: 0'
END: 66 BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME

WEATHER CONDITIONS (373-2716)

55F, mild wind, minimal rain

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
O. Amos (Site Safety/FTL)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
0700	9:30	Waiting for the operator and the source
0930	11:14	
1114	1200	Running the gyro log (logging tool got stuck in the hole)
1200	1245	Lunch
1245		Go back in farm and rerun the gyro log
1413	1435	Trip in rods to retract keeper pin
1435	1525	Pull keeper pin loose and trip out of the hole we will drive the sample tomorrow
1630	.	End of shift

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 4-13-06
SIGNATURE: [illegible]

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WELL I.D.: C5108	*WELL NUMBER*: N/A	*REPORT NUMBER*: 17	*DATE:* March 29, 2006 Wednesday
CONTRACT NUMBER: RC6001	*START CARD NO*: S 27627/A30593	*RIG MODEL/NO*: Back hoe/Hammer Drill	
PURPOSE: Pre-job Safety Meeting, Mobilize and initiate set-up	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*:		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	N/A

BORING DEPTH (include sampling depth):
C5104: START: 0'
END: BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME

WEATHER CONDITIONS (373-2716)

55F, mild wind, minimal rain

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= N/A
Bottom of 2.5" OD casing (end of shift w/bk pull)	= N/A
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
O. Amos (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
0700	0930	POD discussed the buddy system and slippery surfaces, waiting for the OK from Harold to go ahead and sample(he's waiting on the gyro information)
0930	0945	Going into the farm
0945	1000	Finish pulling the keeper pin out
1000	1001	Drive sample 66 - 68
1001	1101	Pull sample out
1115	1145	Grout the hole up, we used 8 buckets of grout
1200	1245	Lunch
1245	1630	Go to the CHAT class

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David P. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager for DATE: 04-13-06
SIGNATURE: Zl O. Amos

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WELL I.D.: C5109	*WELL NUMBER*: N/A	*REPORT NUMBER*: 18	*DATE*: March 30, 2006 Friday
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: SAMPLE AND CONTINUE DRIVING OPERATIONS	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 14		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0 ft	14 ft

BORING DEPTH (include sampling depth):
C5109: START: 0'
END: 14 BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716)

62F, mild breeze

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 14 ft
Casing (2.5 in OD) stick up (end of shift)	= n/A ft
Total Casing (2.5 inch)	= n/a ft

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
Amos (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:45	Pick-up Masks and Racks at SMURF building. Plan of the Day (Safety topic: Driving on site).
08:45	09:30	Dress and enter Tank Farm reset HHU for 45 degree boring.
09:30	12:00	Align and initiate push and advance to 14 ft bgs.
12:00	12:44	Lunch
12:44	15:00	Enter Tank Farm and conduct geophysical logging and Gyro.
15:00	15:30	Dress down and exit Tank Far.
15:30	16:30	Secure site and evaluate data.

REPORT BY: L. Amos
TITLE: Duratek Field Supervisor
SIGNATURE: David C. Shaglefn

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 04-13-06
SIGNATURE: [illegible]

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WELL I.D.: C5109	*WELL NUMBER*: N/A	*REPORT NUMBER*: 19	*DATE:* March 31, 2006 Friday
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*: Hydraulic Hammer Unit	
PURPOSE: SAMPLE AND CONTINUE DRIVING OPERATIONS	*REFERENCE*: DTS-DOW-016, Rev. 0	*LOCATION*: C Tank Farm, 200 East	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 17		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	14 ft	31 ft

BORING DEPTH (include sampling depth):
C5109: START: 14'
END: 31 BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0

TOTAL TIME: 9.0

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716)

56F, mild breeze

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 14 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 31 ft
Casing (2.5 in OD) stick up (end of shift)	= n/A ft
Total Casing (2.5 inch)	= n/a ft

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson,
WA LICENSE #: 1976
OTHER: S. Snook, D. Dudley (Op)
P. Templeton (HPT)
P. Howard (PIC) H. Sydnor (Project Manager)
Amos (Site Safety/FTL)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:45	Pick-up Masks and Racks at SMURF building. Plan of the Day (Safety topic: Ladder safety).
08:45	09:00	Dress and enter Tank Farm. Pull rods out of boring and prepare to run sampler.
09:00	09:45	Run sampler to depth (14.5 ft bgs).
09:45	09:53	Trip in rods to remove keeper.
09:53	09:54	Drive sampler (old style) from 14.5 to 16.5 ft.
09:54		Bottle change
10:04		Pull out sample
10:17		Sample out of boring (the shoe and 1 liner recovered).
10:25		Prepare to run solid tip to 31 ft.
11:03		Drove pipe to 31 ft.
12:00	16:30	Lunch and down to CHAT class. Personnel attend.

REPORT BY: L. Amos
TITLE: Duratek Field Supervisor
SIGNATURE: David F. Shoglie for

REVIEWED BY: KD Reynolds for
TITLE: Project Manager DATE: 04-13-06
SIGNATURE: Zle C. Ana

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WELL I.D.:C5109	*WELL NUMBER*: N/A	*REPORT NUMBER*: 20	*DATE:* 4-03-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DRIVE AND GEOPHYSICAL/GYRO LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.5 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	31.0 ft	31.5 FT

BORING DEPTH (include sampling depth):

C5109: 31.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

0 Hours

WEATHER CONDITIONS (373-2716)

55 degrees F, cool winds scattered showers

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 31.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 31.5 ft
Casing (2.5 in OD) stick up (end of shift)	= N/A
Total Casing (2.5 inch)	= N/A

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976,

M. Repko; D. Dudley, S. Snook (Op.) P. Templeton (HPTs), B. Randall (Geo)

O. Amos (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:30	Pickup masks and racks. Plan of the Day (Safety Topic: Slick Surfaces). Wait on source.
08:30	10:30	Dress and enter C Tank Farm. Conduct Gamma logging.
10:30	11:15	NOTE: C5109 is 45 degree from horizontal. Exit C Tank Farm. Wait on source.
11:15	12:00	Lunch The source arrives.
12:00	13:00	Dress and enter C Tank Farm. Conduct Moisture logging. Mr. Robert Yeskey on location.
13:00	14:00	Pull drive rods out of boring.
14:00	14:20	Bottle change.
14:20	14:27	Drive rods and sampler to 31.5 ft bgs.
14:27	15:15	The sampler key backed off prior to reaching sample depth
15:15	16:30	Secure site.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: D.E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: Kurt Reynolds

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5109	*WELL NUMBER*: N/A	*REPORT NUMBER*: 21	*DATE:* 4-04-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DRIVE AND SAMPLING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 2.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	31.5 ft	33.5 FT

BORING DEPTH (include sampling depth): C5109: 33.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
58 degrees F, cool winds scattered showers

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 31.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 33.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 37.0 ft

SAMPLE SUMMARY

Sample 1: Sample collected prior to reaching depth
Sample 2: BIHY28 31.5 – 33.5 50% Recovery

OPERATOR: KC Olson
WA LICENSE #: 1976,
M. Repko; D. Dudley, S. Snook (Op.) P. Templeton; J. Clayton; K. Harteilius (HPTs), B. Randall (Geo)
O. Amos (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	09:30	Pickup masks and racks. Plan of the Day (Safety Topic: water/mist on plastic makes slick surfaces). Discuss anticipated daily operations. Grind down sampler adapter.
09:30		Dress and enter C Tank Farm.
	11:15	NOTE: C5109 is 45 degree from horizontal. Pull sample (sampler opened prior to reaching sample depth).
11:15	12:15	Run sampler to sample depth (31.5 ft bgs). Release key and remove rods.
12:15	12:40	Discuss sampling.
12:40	13:10	Lunch
13:10	14:00	Dress and enter C Tank Farm. Drive sample 31.5 to 33.5 ft bgs (13:38) Material is salt and pepper, dry.
14:00	14:27	Pull sample and disassemble sampler. No radiological contamination noted. 50% recovery. The rods were tight and a hammer was used to aide in disassembly of rods. This jarred loose soil material from the sampler.
14:27	15:10	Bottle change and back in with new style sampler to a depth of 33.5 ft bgs.
15:10	16:30	Exit C Tank Farm. Secured site and equipment.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5109	*WELL NUMBER*: N/A	*REPORT NUMBER*: 22	*DATE*: 4-05-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DRIVE AND GEOPHYSICAL LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 11.5 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	33.5 ft	45.0 FT

BORING DEPTH (include sampling depth):

C5109: 33.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
45 degrees F, cool winds scattered showers

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 33.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 45.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 48.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson
WA LICENSE #: 1976,
M. Repko; D. Dudley, S. Snook (Op.) P. Templeton; J. Clayton; (HPTs), B. Randall (Geo)
Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:10	Pickup masks and racks. Plan of the Day (Safety Topic: Tank Farm Alarms). Discuss anticipated daily operations.
08:10		Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Fuel Backhoe.
	08:35	NOTE: C5109 is 45 degree from horizontal. Air samplers are on.
08:35		Drive to 45 ft bgs with a sampler. Drive rate 34 min for 11.5 ft.
09:15	09:30	Change air.
09:30		Mr. Randall and Repko enter C Tank Farm to conduct Gamma and Moisture Geophysical logging.
		Tried to warm up Gyro while conducting Geophysical logging. A GFCI kicks. The Gyro will be warmed up after lunch. Geophysical logging completed.
	11:45	Dress and exit C Tank Farm.
11:45	12:20	Lunch
12:20	13:27	Dress and enter C Tank Farm. Conduct two (2) Gyro runs.
13:27		Personnel in C Tank Farm to release key. Run rods and release key. Pulling rods from boring.
	16:30	Secure site and equipment.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 23	*DATE*: 4-06-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: SAMPLE AND MOBILIZE TO C5106	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	0.0 FT

BORING DEPTH (include sampling depth): C5106: 0.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
63 degrees F, partly cloudy

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0 ft
Total Drive String Length	= 0 ft

SAMPLE SUMMARY

Sample BIHY29 45.0 – 47 ft bgs 100% Recovery

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko;S. Snook; K. Hulse
(Op.): J. Clayton, P. Templeton (HPTs)
Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:55	Pickup masks and racks. Plan of the Day (Safety Topic: Tripping Hazards).
08:55		Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
	09:14	NOTE: C5109 is 45 degree from horizontal. Air samplers are on. Remove two remaining key release rods.
09:14	09:20	Drive sampler 25 inches to compact soil in shoe.
09:20	09:30	Pull sampler from boring. No radiological contamination detected. Sample from 45.0 to 47 ft bgs. Sample is dry with salt and pepper material.
09:30		Forklift on location. Change air.
	10:33	Sampler to Mr. Hulse (100% recovery).
10:33	11:45	Cement boring with 33 gallons cement. Add 1sk bentonite crumbles at surface.
11:45	12:20	Lunch
12:20		Dress and enter C Tank Farm.
		Pull plate pins. Take HHU to the RBA and tighten foot-clamp mount.
	16:30	Secure site and equipment.
		Skoglie and Dorsey attend CHAT training.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 24	*DATE:* 4-07-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: SET-UP ON C5106	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	0.0 FT

BORING DEPTH (include sampling depth):

C5106: 0.0 FT BGS

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 8.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
63 degrees F, partly cloudy

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0 ft
Total Drive String Length	= 0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, Carl Ramon ; K. Hulse (Op.): Gunnusney; Armenni (HPTs)
Skoglie (Duratek)

TIME FROM	*TIME* TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:15	Pickup masks and racks. Plan of the Day (Safety Topic: Carry Air). The Weekly Safety briefing was held and discussed Personnel Cooling Equipment and needs for the upcoming Hot Weather. Discuss anticipated daily operations.
09:15		Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
	10:21	NOTE: C5106 is 60 degree from horizontal. Air samplers are on.
10:21		The plastic and felt barrier was moved and set-up at the new location.
	11:40	The ground was leveled by placing 6 buckets of sand at the plate location. Change air. A 2x4 frame was used and plywood to set up the base for the plate. The plate was moved, leveled and aligned on the stakes.
11:40	12:45	Lunch
12:45		Dress and enter C Tank Farm.
	14:00	Drive 6 pins to anchor the plate. Change air.
14:00		Set-up 60 degree stabilizer.
		Exit C Tank Farm.
	16:30	Secure site and equipment.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 25	*DATE:* 4-10-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: SET-UP ON C5106 AND DRIVE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 14.5 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	18.5 FT

BORING DEPTH (include sampling depth):

C5106: 18.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
63 degrees F, partly cloudy

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 18.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 2.5 ft
Total Drive String Length	= 21.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, D. Dudley; S. Snook; K. Hulse (Op.): J. Clayton; P. Templeton (HPTs)

Skoglie/Amos (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:15	Pickup masks and racks. Plan of the Day (Safety Topic: Emergency Vehicles and appropriate actions). Discuss anticipated daily operations. Note: HPT arrive @ 8:30 due to review of RWP's.
09:15		Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
	10:21	NOTE: C5106 is 60 degree from horizontal. Air samplers are on.
10:21		Set-up and align the HHU.
	11:40	Set-up drive rods with a solid tip. Push to 18.5 ft bgs.
11:40	12:20	Lunch
12:20		Dress and enter C Tank Farm.
	14:00	Conduct geophysical logging (Gamma and Moisture).
14:00		Evaluate Gamma and moisture logs.
		Exit C Tank Farm.
	16:30	Secure site and equipment.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 26	*DATE:* 4-11-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: ADVANCE BORING AND OBTAIN SAMPLE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 10.5 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	20.5 ft	31.0 FT

BORING DEPTH (include sampling depth): C5106: 31.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
63 degrees F, partly cloudy

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 18.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 31.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 34.0 ft

SAMPLE SUMMARY

Sample BIHY30 18.5 – 20.5 100% Recovery

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook; K. Hulse (Op.): J. Clayton; P. Templeton (HPTs)

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:05	Pickup masks and racks. Plan of the Day (Safety Topic: Maintenance). Discuss anticipated daily operations.
09:05		Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
		NOTE: C5106 is 60 degree from horizontal. Air samplers are on.
		Pull rods from boring. NOTE: Maintenance conducted on rental generator.
	09:55	Sampler in zone and run to sample depth. Most of the boring required Re-drill to reach bottom. Bottle (air) change.
09:55		Run release rods to bottom and release key. Remove rods.
	10:47	Add drive rods to drive sample.
10:47	10:49	Take a sample from 18.5 to 20.5 ft bgs.
10:49	11:58	Pull sampler out of boring. Material damp salt and pepper sand and gravel. No Radiological contamination noted.
11:58	12:40	Lunch
12:40	13:25	Discuss operations. Dress and enter C Tank Farm.
13:25		Install new style sample with the heavy duty key (HD-KEY).
	14:22	Drive to 31 ft bgs.
14:22	16:30	Secure site and equipment. Exit C Tank Farm.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 27	*DATE*: 4-12-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: ADVANCE BORING AND CONDUCT GEOPHYSICAL LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 59.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	31.0 ft	90.0 FT

BORING DEPTH (include sampling depth): C5106: 90.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
65 degrees F, high clouds

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 31.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 90.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 93.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook; K. Hulse (Op.): J. Clayton; P. Templeton (HPTs): B. Randall (Geo)

Skoglie/Amos (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:20	Pickup masks and racks. Plan of the Day (Safety Topic: Emergency Vehicles). Discuss anticipated daily operations.
08:20	08:40	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
08:40	09:02	NOTE: C5106 is 60 degree from horizontal. Air samplers are on.
09:02	09:14	Add rod and drive to 35 ft bgs. Add rod and drive to 39 ft bgs.
09:14	09:29	Add rod and drive to 43 ft bgs. Realign HHU. Add rod and drive to 47 ft bgs.
09:29	09:36	Add rod and drive to 51 ft bgs. Add rod and drive to 55 ft bgs.
09:36	09:53	Add rod and drive to 59 ft bgs. Add rod and drive to 63 ft bgs.
09:53	10:17	Add rod and drive to 67 ft bgs. Add rod and drive to 71 ft bgs.
10:17	10:33	Add rod and drive to 75 ft bgs. Add rod and drive to 79 ft bgs.
10:33	11:06	Add rod and drive to 83 ft bgs. Add rod and drive to 87 ft bgs.
11:06	11:11	Add rod and drive to 90 ft bgs.
		Mr. Dorsey conducts survey for plate location supporting Gyro data collection.
	11:29	Dress and exit C Tank Farm. Lunch. 11:29 – 12:13. Obtain source @ 13:00
	16:30	Initiate Moisture logging. Log to 48.5 ft. Computer down. Secure site. Discuss operations.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 28	*DATE*: 4-13-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: CONDUCT GEOPHYSICAL LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	90.0 ft	90.0 FT

BORING DEPTH (include sampling depth):

C5106: 90.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
67 degrees F, high clouds/breeze

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 90.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 90.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 93.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook; K. Hulse (Op.): J. Clayton; P. Templeton (HPTs): B. Randall (Geo)
Skoglie (Duratek)

TIME FROM	*TIME* TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:20	Pickup masks and racks. Re-Ace. RWP evaluated for fresh air requirements. OK to work under RWP. Plan of the Day (Safety Topic: Emergency Vehicles). Discuss anticipated daily operations.
09:20	09:40	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
09:40	10:15	NOTE: C5106 is 60 degree from horizontal. Air samplers are on.
10:15		Obtain source. Initiate Moisture logging.
	12:15	Complete Moisture logging.
12:15		Initiate Gamma Logging
	13:30	Gamma logging complete.
13:30		Conduct Gyro logging.
	16:30	Secure site and equipment. Evaluate data.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 29	*DATE:* 4-14-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: CONDUCT ACTIVITIES IN PREPARATION OF SAMPLING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	90.0 ft	90.0 FT

BORING DEPTH (include sampling depth):

C5106: 90.0 FT BGS

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 8.5

DOCUMENTED DOWNTIME:

3 Hours

WEATHER CONDITIONS (373-2716)

65 degrees F, 15 – 25 gusts to 30 expected pm; scattered showers

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 90.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 90.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 93.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook; K. Hulse (Op.): J. Clayton; R. Klein (HPTs):

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:18	Pickup masks and racks. Plan of the Day (Safety Topic: Anchoring below Mcnary when spilling water). Discuss anticipated daily operations.
08:18	08:40	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
08:40	08:46	NOTE: C5106 is 60 degree from horizontal. Air samplers are on.
08:46	09:00	Change jaws in foot-clamp.
09:00	09:36	Initiate pulling rods. 5 joints pulled and change air.
09:36		Pull rods from boring.
	12:00	Obtain sampler and run to bottom (90.0 ft bgs).
12:00	12:30	Lunch
12:30		Wind in excess of 25 mph.
		Discuss driving operations and modifications to equipment.
	15:30	Also discuss well completion with moisture probe.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5106	*WELL NUMBER*: N/A	*REPORT NUMBER*: 30	*DATE:* 4-17-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: CONDUCT SAMPLING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 2.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	90.0 ft	92.0 FT

BORING DEPTH (include sampling depth): C5106: 92.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
60 degrees F, 5 – 18 gusts to 25 expected pm; scattered showers

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 90.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 90.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 93.0 ft

SAMPLE SUMMARY

Sample BIHY31 90 – 92 ft 100% Recovery

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; K. Hulse
(Op.): J. Clayton; P. Templeton
(HPTs):
Skoglie/Amos (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:40	Pickup masks and racks. Plan of the Day (Safety Topic: Equipment recalls). Discuss anticipated daily operations.
08:40	09:00	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
09:00	09:20	NOTE: C5106 is 60 degree from horizontal. Air samplers are on.
09:20	09:35	Drive sampler to 90.0 ft bgs.
09:35	09:45	Tag key. Sampler is intact.
09:45		Runs rods to release key. Change air.
	12:00	Release key (fairly tight). Trip rods out.
12:00	12:30	Lunch
12:30	12:56	Dress and enter C tank Farm. Take sample from 90 to 92 ft bgs.
12:56		Trip sampler out of the boring.
		Material is salt and pepper sand and gravel.
	14:30	Initiate running tremie for decommissioning operations.
	16:30	Secure site and equipment. Exit C Tank Farm. Discuss driving operations.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 31	*DATE*: 4-18-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: CONDUCT DECOMMISSIONING SET-UP ON C5107	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 2.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	8.0 FT

BORING DEPTH (include sampling depth): C5107: 8.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
67 degrees F, 5 – 10 mph

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 8.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 11.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook, K. Hulse; J. Hogan (Op.): J. Clayton; P. Templeton (HPTs): Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:450	Pickup a grout tip (Duratek Pipeyard) and masks and racks. Plan of the Day (Safety Topic: Vehicle traffic and parking). A weekly Safety meeting discussed bear/wild animal attacks. Discuss anticipated daily operations.
08:45	09:00	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
09:00	09:20	NOTE: C5107 is 45 degree from horizontal. Air samplers are on. Run grout tip for decommissioning operations.
09:20	12:00	Conduct cement (63 gallons) and casing back-pull operations. Add 2 sacks bentonite crumbles at surface.
12:00	12:40	Lunch
12:40	14:30	Dress and enter C Tank Farm. Move HHU and set-up on C5107 (45 degree boring).
14:30		Drive a solid tip to 8.0 ft bgs.
		Secure site and equipment.
	16:30	Dress and exit C Tank Farm.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 32	*DATE:* 4-19-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GEOPHYSICAL LOGGING, SAMPLING AND DRIVING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 11.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	8.0 ft	19.0 FT

BORING DEPTH (include sampling depth): C5107: 17.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
65 degrees F, 5 – 10 mph

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 8.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 17.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 20.0 ft

SAMPLE SUMMARY

Sample BIHY32 17.0 to 19.0 ft bgs. 100% Recovery

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook, K. Hulse; J. Hogan (Op.): J. Clayton; P. Templeton (HPTs): B. Randall
Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Pickup a grout tip (Duratek Pipeyard) and masks and racks. Plan of the Day (Safety Topic: Hazards relating to the HHU). Discuss anticipated daily operations.
07:30	07:45	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
07:45	07:50	NOTE: C5107 is 45 degree from horizontal. Air samplers are on.
07:50	10:08	Conduct Gamma and Gyro logging. No radiological levels were noted. The Gyro results are with 1 degree, which is OK to procede.
10:08		Dress and C Tank Farm.
	10:20	Drive to 17.5 ft bgs.
10:20	12:00	Gamma log. Review data. No Radiological levels noted.
12:00	12:40	Lunch
12:40		Dress and enter C Tank Farm. Align and drive sampler to 17.0 ft bgs. A hard layer (fine grained zone) was encountered and a determination was made to take a sample at 17 ft versus 17.5 ft bgs.
		A tag revealed the sampler was intact.
	14:20	Run rods in to release the key. The Key was released and rods removed from the boring.
14:20	14:32	A Sample was taken from 17.0 ft to 19.0 ft bgs.
14:32		The sample was pulled and Mr. Hogan collected the sample. Material was Damp
	16:30	Dress and secure the site and equipment. Discuss equipment modifications.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: Kent Reynolds

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 33	*DATE*: 4-20-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: CONDUCT GEOPHYSICAL LOGGING, SAMPLE AND DRIVING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level		*TOTAL SHIFT FOOTAGE*: 5.5 ft	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	19.0 ft	24.5 FT

BORING DEPTH (include sampling depth): C5107: 24.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
65 degrees F, 5 – 10 mph

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 17.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 22.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 26.0 ft

SAMPLE SUMMARY

Sample BIHY32 22.5 to 24.5 ft bgs. 100% Recovery

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook, K. Hulse; (Op.): J. Clayton; P. Templeton (HPTs): B. Randall (Geo)

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Pickup a grout tip (Duratek Pipeyard) and masks and racks. Plan of the Day (Safety Topic: Personal Protective Equipment and CHG). Discuss anticipated daily operations.
07:30		Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
	08:30	NOTE: C5107 is 45 degree from horizontal. Air samplers are on.
08:30	09:30	Set-up angle bracket.
09:30	09:50	Start driving pipe. Pipe at 22.5 ft bgs. Change air.
09:50	10:50	Mr. Randall and Mr. Repko enter to Gamma log. Gamma log completed. No radiological levels noted.
10:50		Pull rods out of C Tank Farm.
	12:15	Run sampler to 18.5 ft bgs. Tag reveals the sampler is intact. Dress and exit C Tank Farm.
12:15	12:50	Lunch
12:50		Dress and enter C Tank Farm. Drive sample depth depth (22.5 ft bgs).
		Trip in key release rods. Release key.
13:59	14:00	Drive sample 22.5 to 24.5 ft bgs.
14:00	14:55	Pull sample from boring. No radiological contamination noted. Mr. Hulse packages liners and ships.
14:55	16:30	Set-up angle bracket with sampler. Secure site and equipment. Dress and exit Tank Farm. Discussion.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: Dan E Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 34	*DATE:* 4-21-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DOWN DUE TO WIND	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	24.5 ft	24.5 FT

BORING DEPTH (include sampling depth): C5107: 24.5

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 8.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
58 degrees F, 18 – 25 mph gusts to 35 mph.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 22.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 22.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 26.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; K. Hulse; (Op.): (HPTs): B. Randall (Geo)
Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00		Field crew arrives and evaluates wind. The wind is blowing in excess of Work Package limits. The 20 mph restriction is currently in affect since the work scope is driving.
		The field crew stands by to see if the wind will back off. No such luck.
		The field crew rounds up supplies for the upcoming completion.
	15:30	Site secured.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 35	*DATE:* 4-24-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DOWN DUE TO THE WIND	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	24.5.0 ft	24.5.0 FT

BORING DEPTH (include sampling depth): C5107: 24.5.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
9 Hours

WEATHER CONDITIONS (373-2716)
57 degrees F, 18 – 27 mph, increasing pm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 22.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 22.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 26.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook, K. Hulse; (Op.): J. Clayton; P. Templeton (HPTs): B. Randall (Geo)
Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:30	Pickup masks and racks. Personnel ACE. Plan of the Day (Safety Topic: Blowing dust). The Weekly Safety briefing discusses Proper PPE). Discuss anticipated daily operations.
08:30		The wind is increasing. The field crew will evaluate the wind and regroup after lunch to determine if access to the C Tank Farm is allowed. Wind will need to be below 20 sustained.
		The field crew meets with Mr. Auten to discuss the sampler.
		Picked up parts for the keeper pins.
		Completed Washington State Department of Ecology Completion reports for the first three C Tank Farm wells.
	16:30	The site was secured.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 36	*DATE*: 4-25-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: CONDUCT DRIVING AND GEOPHYSICAL LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 34.5 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	24.5 ft	59.0 FT

BORING DEPTH (include sampling depth):

C5107: 59.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
73 degrees F, Calm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 22.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 59.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 62.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook, K. Hulse; (Op.): J. Clayton; P. Templeton (HPTs): B. Randall (Geo)

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Pickup masks and racks. Plan of the Day (Safety Topic: Sunburn and sun-block). Discuss anticipated daily operations.
07:30	08:15	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air Sample paper is changed out.
08:15	08:30	NOTE: C5107 is 45 degree from horizontal. Air samplers are on.
08:30	11:05	Drive casing to a depth of 59.0 ft bgs. The tag revealed the sampler intact.
11:05		Mr. Randall enters to conduct geophysical logging. Mr. Randall works through lunch. Mr. Repko and Kelly spell each other to allow a break.
	12:00	The Gamma Log is complete @ 12:00. No radiological readings were detected.
	13:30	The Moisture logging was initiated and completed @ 13:30 hrs.
	15:30	The Gyro was ran and completed @ 15:30 hrs. The C Tank Farm and equipment was secured.
15:30		Download geophysical and Gyro data. No radiological readings were noted with the Gamma log. A couple moisture peaks were noted.
	16:30	The Gyro data was not consistent. It was decided to evaluate in the AM with Mr. Meisner and Mr. Dorsey.
		The area was secured.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: [illegible]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 37	*DATE*: 4-26-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: EVALUATE GYRO, SAMPLE, AND DRIVE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 40.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	59.0 ft	40.0 FT

BORING DEPTH (include sampling depth):

C5107: 40.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
69 degrees F, slight breeze

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 59.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 40.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 43.0 ft

SAMPLE SUMMARY

Sample: B1HY34 59.0 – 61.0 ft 90% Recovery

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook, K. Hulse; (Op.): J. Clayton; P. Templeton (HPTs): B. Randall (Geo); H. Snydor (Project Manager)

Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	07:30	Pickup masks and racks. Plan of the Day (Safety Topic: Pinch Points). Discuss anticipated daily operations. Mr. Meisner, Dorsey and Randall are on location to evaluate the Gyro. The RAW data showed good numbers for the inclinometer, however the X Y coordinates are still off.
07:30	08:15	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
08:15	08:30	NOTE: C5107 is 45 degree from horizontal. Air samplers are on.
08:30	10:30	Mr. Randall sets the Gyro up and conducts two (2) runs. The Gyro data is evaluated with the same results. X and Y data is not repeatable. Arrangements are made to ship back to vendor for evaluation and repair. Duratek is trying to get the rental Gyro in the meantime.
10:30	11:30	Mr. Olson and Repko trip rods for key removal. The key is released (fairly tight) and remove rods/key.
11:30	12:15	Lunch
12:15	12:58	Dress and enter C Tank Farm. A sample is taken from 59.0 to 61.0 ft bgs.
12:58		The sample is pulled from the boring and packaged by Mr. Hulse. The sample material is a salt and pepper sand that is damp.
		The rods are pushed to 40.0 ft bgs with a flush I.D. removable tip.
	16:30	Discuss resistivity probe installation.
		NOTE: The Gyro is shipped back to the vendor for evaluation and repair.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 38	*DATE:* 4-27-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DRIVE MOBILIZE TO NEXT LOCATION	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 21 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	40.0 ft	61.0 FT

BORING DEPTH (include sampling depth): C5107: 61.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
69 degrees F, slight breeze

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 40.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 61.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 64.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook, K. Hulse; (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).
Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Pickup masks and racks. Plan of the Day (Safety Topic: House-keeping). Discuss anticipated daily operations.
07:30	08:15	Dress and enter C Tank Farm. Conduct site and equipment inspection. Bulb out on back of backhoe.
08:15		NOTE: C5107 is 45 degree from horizontal. Issue with using RBA for next location. Mr. Snook and Snydor resolve issue. We were informed at noon that we are approved to proceed to next location.
	08:30	Air samplers are on. Initiate driving rods.
08:30	09:30	Drive to 60.9 feet bgs.
09:30	10:20	Ready equipment for move to next location, which is located in the RBA adjacent to the change trailer.
10:20	11:36	Pulling pins. Two pins pulled and the head removed. The pins will remain in the ground for reinstalling the plate at a later date.
11:36	12:25	Lunch
12:25		Dress and enter C Tank Farm. Continue mobilization to next site. Task at hand is pulling heads from the pins.
		Remaining 4 pins pulled back and heads removed. Move plate. Level site and set-up frame.
	15:15	Add sand and set plate.
15:15	16:30	Secure site and exit C Tank Farm.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 39	*DATE*: 4-28-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: SET-UP AND DRIVE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 21 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	13.0 FT

BORING DEPTH (include sampling depth):

C5104: 13.0 FT BGS

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
2 Hours

WEATHER CONDITIONS (373-2716)
69 degrees F, slight breeze

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 13.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 16.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; D. Dudley; K. Hulse; (Op.): J. Clayton (HPTs); H. Snydor (Project Manager).
Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	Pickup masks, racks and push rods. Plan of the Day (Safety Topic: Parking and blocking the driveway). Discuss anticipated daily operations.
08:00	08:20	Dress and enter C Tank Farm. Conduct site and equipment inspection. No new deficiencies noted.
08:20	09:20	Haul rods and pin points into the C Tank Farm.
09:20		The HHU was moved into position to drive plate pins.
		Six (6) pins were drove into the ground to secure the plate.
	11:35	The 45 degree bracket was set-up.
11:35		Driving was initiated at 11:35 hrs.
		Drive to a depth of 13 ft bgs. A hard layer was intercepted. Will evaluate.
	12:20	Site and equipment is secured. Dress and exit C Tank Farm.
		No operator support pm.
	15:30	Personnel review work plan.
		NOTE 1: Orange cones were set over existing pins supporting C5107.
		NOTE 2: C5104 is 45 degrees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-8-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 40	*DATE*: 5-01-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: STANDBY DUE TO WIND	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	13.0 ft	13.0 FT

BORING DEPTH (include sampling depth):

C5104: 13.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

9 Hours

WEATHER CONDITIONS (373-2716)

73 degrees F, winds 23 mph sustained with gusts to 34, increasing through-out the day.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 13.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 13.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 16.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; J. Hogan (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	Pickup masks and racks. Plan of the Day (Safety Topic: Site Congestion). Discuss anticipated daily operations.
08:00		The wind is blowing hard and increasing. No in farm work.
		Water was scheduled for the pipeyard.
		Push pipe was cleaned.
		Status of Gyro: Received by vendor.
	16:30	Area secured.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 41	*DATE*: 5-02-06
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GEOPHYSICAL LOGGING AND SAMPLE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 22.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	13.0 ft	35.0 FT

BORING DEPTH (include sampling depth):

C5104: 35.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
67 degrees, calm breeze with clear skies

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 13.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 35.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 38.0 ft

SAMPLE SUMMARY

Sample: B1HY35 100% Recovery

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; D. Dudley; S. Snook; J. Hogan (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	07:55	Pickup masks and racks. Plan of the Day (Safety Topic: Site Repair due to wind). Air Samplers have blown over inside the C Tank Farm. They will need evaluated by the HPT for operation. The enclosure will need repair due to the wind blowing the 20 wide plastic apart. Discuss anticipated daily operations.
07:55		Dress and enter the C Tank Farm.
		Conduct site and equipment inspection. No deficiencies noted.
	09:51	Set-up to conduct Moisture logging. Completed at 09:51 hrs. Moisture peak at 11 ft bgs.
09:51	10:32	Set-up and conduct Gamma logging. Completed at 10:32 hrs. No radiological peaks noted.
10:32		The Operator dresses and enter C Tank Farm to pull rods.
		A sampler was drove to 13.5 ft bgs.
		The key was moved from the sampler.
	12:05	A sample was be obtained from 13.5 to 15.5 ft bgs at 12:05 hrs. The sample material was damp.
12:05		A sampler was ran into the boring to a depth of 35 ft bgs. Driving will continue tomorrow.
		The area was secured.
	16:30	Dress and exit C Tank Farm.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 42	*DATE:* 5-03-06 (Wednesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DRIVING TO DEPTH AND GEOPHYSICAL LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 73.5 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	35.0 ft	108.5 FT

BORING DEPTH (include sampling depth):

C5104: 35.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

0 Hours

WEATHER CONDITIONS (373-2716)

72 degrees, calm breeze with clear skies

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 35.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook; J. Hogan (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:20	Pickup masks and racks. Plan of the Day (Safety Topic: Hand Signals). Personnel will communicate with hand signals often while on mask. The Teams communicating will need to know what the hand signals represent. Good communication is very important. The Weekly safety meeting discussed electrical Power Strip operation. Discuss anticipated daily operations.
08:20		Dress and enter the C Tank Farm.
	09:00	Conduct site and equipment inspection. No deficiencies noted.
09:00	10:10	Drive casing to a depth of 67 ft bgs.
10:10	12:10	Continue driving to a depth of 108.5 ft bgs. A tag revealed the sampler is intact.
12:10	12:55	Lunch
12:55		Mr. Randall and Repko dress and enter the C Tank Farm to conduct Geophysical logging.
		Logging initiated @ 13:10
		Gamma geophysical logging completed to 105.5 ft bgs. Tomorrow the logging will be completed to total depth and a section for repeat.
		Secure equipment and area.
	15:20	Dress and exit C Tank Farm.
	16:30	
		NOTE: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 43	*DATE*: 5-04-06 (Thursday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GEOPHYSICAL LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5	108.5 ft

BORING DEPTH (include sampling depth):

C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

0 Hours

WEATHER CONDITIONS (373-2716)

76 degrees, breezy (10-25 mph gusts) with clear skies

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook; J. (Op.): J. Clayton; P. Templeton (HPTs); Brent Randall (PNG), H. Snydor (Project Manager).

Reynolds (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:20	Pickup masks and racks. Plan of the Day (Safety Topic: Buddy System, moisture tool dose rates). Bases on questions and concerns from Rad Con source handling procedure and risks discussed. HPTs will acquire Snoopy and acquire shielded and un-shielded dose r ate for moisture tool Am source. Discuss anticipated daily operations.
08:20	9:30	Wait on HPT to return with Snoopy (neutron detector).
9:30	09:40	Acquire dose rate- release source for use.
09:40	10:10	Randall and Olsen dress and enter farm.
10:10	10:50	Set up to complete gamma logging- acquire data
10:50	11:20	Gamma completed. Acquire moisture log data.
11:20	11:30	Exit for lunch.
11:30	12:30	Lunch
12:30	12:40	Randall and Repko dress and enter farm- Resume moisture log acquisition.
12:40	15:00	Complete moisture log. Secure equipment and area.
15:00	15:20	Exit C Tank Farm.
15:20	16:30	Review field copies of gamma and moisture logs
		NOTE: C5104 is 45 degees from horizontal.

REPORT BY: K. D. Reynolds
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Shoglin for

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 44	*DATE:* 5-08-06 (Monday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: REMOVAL OF KEY	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth):

C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
9 Hours

WEATHER CONDITIONS (373-2716)
59 degrees, (22 - 30 mph) expected all day

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; (Op.): P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:20	Pickup masks and racks. Plan of the Day (Safety Topic: Communication) Discuss anticipated daily operations.
08:20		No NCO support and wind is restrictive for C Tank Farm Work.
		Review boring completion data.
	16:30	Area cleaned and secured.
		Return masks and racks.
		NOTE: The driller's trailer was cleaned and organized.
		NOTE: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 45	*DATE*: 5-09-06 (Tuesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: REMOVAL OF KEY	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth): C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
61 degrees, calm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).
Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:15	Pickup masks and racks. Plan of the Day (Safety Topic: Tripping Hazards) Discuss anticipated daily operations.
08:15		NOTE 1: The Gyro is scheduled to arrive ~10:00 May 11. The Gyro will need to be tested prior to transport to the C Tank Farm. Anticipated arrival at C Tank Farm is 12:00.
		Personnel dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted.
	10:45	Trip fishing string in 109 ft. to remove sampler key. The key released very well. The fishing string was pulled from the bore-hole.
10:45		Conduct maintenance of HHU.
	11:30	Removed support wagon from the C Tank Farm for repair. Also, remove 30 degree angle bracket for modification. Secure site and HHU. Dress and exit C Tank Farm.
11:30	12:15	Lunch
12:15	16:30	Repair wagon supporting Tank Farm work.
		NOTE: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 46	*DATE*: 5-10-06 (Wednesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: STANDBY – MODIFY ANGLE BRACKET	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth):

C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
66 degrees, calm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:15	Pickup masks and racks. Plan of the Day (Safety Topic: Hot weather) Discuss anticipated daily operations.
08:15		NOTE 1: The Gyro arrives today. The Gyro will need to be tested prior to transport to the C Tank Farm.
		Personnel dress and enter C Tank Farm.
	12:10	Conduct maintenance of HHU. The site and equipment are secured.
12:10	12:45	Lunch
12:45	16:30	Modify the 30 degree angle bracket.
		NOTE 2: Initial testing of the Gyro was tested and evaluated. The test revealed the Gyro is operational. Testing and evaluation completed at 19:00 hrs.
		NOTE 3: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 47	*DATE*: 5-11-06 (Thursday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GYRO EVALUATION	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth): C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
66 degrees, calm

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager); R. Price (NW Geophysics).
Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:15	Pickup masks and racks. Plan of the Day (Safety Topic: Do not hurry your work – work safe) Discuss anticipated daily operations.
08:15		NOTE 1: Gyro testing and evaluation was completed. The test revealed the Gyro is operational. The Rudy cart is putting out 121 Volt.
		Stage the Grey Ghost at the C Tank Farm gate. Personnel dress and enter C Tank Farm.
		Conduct an equipment and site inspection. No deficiencies noted.
	10:15	Mobilize the Grey Ghost logging truck into the C Tank Farm. Run power from the change trailer to the logging truck.
10:15	11:00	Set-up and initiate warm up period. Conduct two Gyro runs.
11:00		
		Demobilize the Grey Ghost from the C Tank Farm. Secure equipment and site. Undress and exit the C Tank Farm.
		Data from the Gyro run is not acceptable.
	16:30	Evaluate the Gyro and options.
		NOTE 2: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 48	*DATE*: 5-12-06 (Friday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GYRO EVALUATION	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth): C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
66 degrees, 8 – 18 W/GUSTS TO 25 MPH

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook (Op.): J. Clayton; P. Templeton (HPTs);B. Randall (NW Geophysics); H. Snydor (Project Manager).

D. Skoglie; M. Dorsey (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:15	Pickup masks and racks. A Carry Air is required for driving the Grey Ghost.
08:15		Plan of the Day (Safety Topic: Personal Protective Equipment (PPE). Discuss anticipated daily operations.
		Personnel dress and enter the C Tank Farm.
		Conduct a site and equipment inspection. No deficiencies noted.
	10:10	Gyro runs (two) were conducted. The data was evaluated with non-acceptable results.
10:10		The Grey Ghost was moved out of the C Tank farm.
		A simulated bore-hole was set-up North of the Duratek pipeyard. A PVC tubing (23 degrees) and drive rod (25 degrees) was utilized.
		The Grey Ghost was mobilized to the test location and two Gyro runs were made at each location.
		The Gyro data will be downloaded on Monday.
	15:30	Mobilize equipment to the Duratek pipeyard. Equipment and site secured.
		NOTE 1: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-15-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 49	*DATE*: 5-15-06 (Monday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: EVALUATION OF GYRO	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth): C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
Hot and slight breeze.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).
Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:15	Pickup masks and racks. Plan of the Day (Safety Topic: Tripping hazards on Mask). Discuss anticipated daily operations.
		Download data from Gyro testing on Friday. The data is not repeatable.
		The logging truck (Grey Ghost) and crew traveled to a remote location on the Hanford site to set-up the Gyro for a test run. The PVC tubing was set-up on a slope. Two runs were conducted.
		The PVC was disassembled and equipment secured. The data was down loaded with the same results (not repeatable).
		The logging truck was staged at C Tank Farm.
		Lunch
		Mr. Reynolds continues discussions with the Gyro manufacturer. It was suggested to run a stop and aquire method of data acquisition.
		The HHR C Tank Farm leak detection system will also be shut-down when logging is conducted tomorrow.
		Secure area.
	16:30	Discuss WBGT and upcoming hot weather.
		NOTE 1: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-20-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 50	*DATE*: 5-16-06 (Tuesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GYRO SURVEY	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth):

C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
4 Hours

WEATHER CONDITIONS (373-2716)
Hot and slight breeze. WBGT into effect.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).
Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:32	Pickup masks and racks. Plan of the Day (Safety Topic: Hard hats and PPE). A weekly safety meeting was held. Discussed was the use and transport of Canned Air. Canned air is an extremely flammable aerosol propellant. Discuss anticipated daily operations.
08:32		Discuss Gyro operation. Run stop and aquire data at 60 second intervals every 3 meters.
		NOTE 1: 8:50 73 degree WBGT.
09:00	09:55	Logging truck set-up. Warm up Gyro. The HHR is shut down @ 09:44.
09:55	10:40	Mr. Repko and Randall in to conduct logging. Logging completed at 10:40. Computer is taken to the support trailer for down loading. A Magnotometer is ran on the drive pipe in the C Tank Farm by Mr. Randall. Further evaluation will be conducted on the Mag. NOTE 2: WBGT readings W = 74 @ 09:50 and C Tank Farm = 78.6 @ 09:45.
		Download and evaluate data. Data is Good. Project Manager is ready to sample.
11:45	12 20	Lunch WBGT is 79 @ 11:45. Temperature is 89.
12:20		Personnel drive logging truck out of C Tank Farm. Site and equipment is secured.
	16:30	WBGT readings limit work. No further work in C Tank Farm today due to WBGT.
		Crew rounds up equipment for upcoming work.
		NOTE 2: Magnotometer readings are as follows: C5104: 0 ft –1.55; 10 ft –2.6; 20 ft –1.43; 30 ft – 1.47; and 50 ft – 1.29.
		NOTE 3: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-20-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 51	*DATE*: 5-17-06 (Wednesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: SAMPLE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	108.5 ft

BORING DEPTH (include sampling depth):

C5104: 108.5 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
4 Hours (WBGT)

WEATHER CONDITIONS (373-2716)
Hot with slight breeze. WBGT is implemented.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 108.5 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 108.5 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.5 ft
Total Drive String Length	= 112.0 ft

SAMPLE SUMMARY

Sample: B1HY36

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook; J. Hogan (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	Pickup masks and racks. Plan of the Day (Safety Topic: Hot weather and WBGT). Discuss anticipated daily operations.
08:00	08:50	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating. Set-up sun-shade.
08:50		Set-up to drive sample. Drive sample @ 09:08.
	09:33	Pulling drive rods (4 pulled). Change air @ 09:21.
09:33	10:05	Enter C Tank Farm and continue pulling drive rods.
10:05	10:40	WBGT is @ 77 with a temperature of 85 degrees. Personnel are on 50/50.
10:40	11:10	Enter C Tank Farm. Trip out all but 3 rods.
11:10	11:40	WBGT is @ 79 with a temperature of 90 degrees.
11:40		Trip remaining rods out of boring and breakdown sampler. Sampler is transported to RBA.
		Mr. Hogan disassembles sample. Moisture is present (especially B and C liners).
	12:30	Work site and equipment is secured. Lunch 12:00 to 12:30
12:30	16:30	Evaluate mister and other cooling equipment.
		NOTE 1: C5104 is 45 degees from horizontal.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-20-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5104	*WELL NUMBER*: N/A	*REPORT NUMBER*: 52	*DATE*: 5-18-06 (Thursday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DECOMMISSION C5104	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	0.0 ft

BORING DEPTH (include sampling depth):

C5104: 0.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

2 Hours (WBGT)

WEATHER CONDITIONS (373-2716)

Hot with slight breeze. Work Rest regimen is implemented.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0.0 ft
Total Drive String Length	= 0.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:10	Pickup masks and racks. Pickup potable water. Plan of the Day (Safety Topic: A dull knife or fishing hook is more dangerous than a sharp one). Discuss anticipated daily operations. WBGT is 71 and Temp is 74 degrees @ 07:45.
08:10	09:10	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating. Set-up sun-shade.
09:10	09:52	Drive pipe to a depth of 40 ft bgs. WBGT @ 09:30 is 78 temp 85 degrees.
09:52	10:10	Tank Farm IH states WBGT is 82 @ 09:58. This means we are on 25% work and 75% rest. WBGT will shut down work in the Tank Farm within ½ hour.
10:10	12:00	Discuss decommissioning operations.
12:00	12:30	Lunch
		Crew supports another project (Vista) for 3 hours.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 53	*DATE*: 5-22-06 (Monday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DECOMMISSION C5104	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	0.0 ft

BORING DEPTH (include sampling depth):

C5104: 0.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
65 degrees with a wind of 10 to 15 mph.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0.0 ft
Total Drive String Length	= 0.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager). Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:50	Pickup masks and racks. Pickup potable water. Plan of the Day (Safety Topic: Watch where you step). Discuss anticipated daily operations. Health Physics meeting.
08:50	09:25	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
09:25	11:30	Back pull drive pipe and decommission C5104 with 43 gallons of cement.
11:30	12:15	Lunch
12:15		Pull off 45 degree angle bracket and set 30 degree angle bracket.
		Reposition HHU.
		Drive pipe to a depth of 13 ft bgs.
		Secure site and equipment.
	15:45	Undress and exit C Tank Farm.
15:45	16:30	Discuss daily progess.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 54	*DATE:* 5-23-06 (Tuesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DECOMMISSION C5104	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	108.5 ft	0.0 ft

BORING DEPTH (include sampling depth):

C5104: 0.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

4 Hours Standby

WEATHER CONDITIONS (373-2716)

65 degrees with a wind of 10 to 15 mph.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0.0 ft
Total Drive String Length	= 0.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs); B. Randall (NW Geophysics); H. Snydor (Project Manager). Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:00	Pickup masks and racks. Pickup potable water. Plan of the Day (Safety Topic: Planning and Lessons Learned). Discuss anticipated daily operations. Health Physics meeting.
09:00	09: 25	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
09:25		Mr. Randall and Repko conduct gamma logging. Secure site and Equipment.
	12:30	Mr. Meisner is set-up for gyro run. Personel undress and exit C Tank Farm.
12:30	13:00	Lunch
13:00	16:30	CH2M Hill and drill personnel attend the Safety Expo.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 55	*DATE*: 5-24-06 (Wednesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GYRO C5105	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	13.0 ft	13.0 ft

BORING DEPTH (include sampling depth):

C5105: 13.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

4 Hours

WEATHER CONDITIONS (373-2716)

63 - 72 degrees with a wind of 10 to 15 mph.

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 13.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 13.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 4.5 ft
Total Drive String Length	= 17.5 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:07	Pickup masks and racks. Pickup potable water. Plan of the Day (Safety Topic: Safety Expo). Discuss anticipated daily operations. Mr. Meisner on location. Gyro set-up and tested. Tested OK.
09:07	10:15	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
10:15	11:45	Start Gyro warming period. Gyro C5105. Complete @ 11:45. The HHR had been shut down prior to the Gyro Run.
11:45	12:30	Lunch and evaluate Gyro data. The data looks Good.
12:30		C Tank Farm is shut down. A air sample turned up hot on another project.
		An in Farm HPT evaluating the hot air sample turns off the Gray Ghost logging trucks Generator.
	16:30	Secure site.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 56	*DATE*: 5-25-06 (Thursday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: SAMPLE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 1.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	13.0 ft	14.0 ft

BORING DEPTH (include sampling depth):

C5105: 14.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
65 - 72 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 13.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 14.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= ft

SAMPLE SUMMARY

SAMPLE: B1JFP2 13 – 15.5 ft.70% Recovery

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager). Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:50	Mr. Olson conducts Whole Body Count first thing in the morning and travels to work location. Pickup masks and racks. Plan of the Day (Safety Topic: SWP dress). Discuss anticipated daily operations.
08:50	09:	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
		K. and Randall enter C Tank Farm to conduct Gyro logging of C5107. Move truck (Grey Ghost) from C5105 to C5107. Set-up equipment.
		Mr. Olson and Repko enter C Tank Farm to continue work at C5105. Pull pipe from boring. Run a sampler to 13 ft bgs.
		Drive a sample from 13 ft to 15.5 ft bgs.
	11:10	The logging truck generator is running. Personnel come out to change air. A C Tank Farm work stoppage is in effect. Work at the C-103 tank has shut down our work. Apparently, an HPT has read his instrument wrong (wrong scale) and thought the RWP was exceeded.
11:10		Lunch
	13:52	Awaiting word to continue work.
13:52		Word has come in to continue work. The crews dress and enter C Tank Farm.
		Mr. Olson removes the sampler from the boring. Mr. Hulse packages sample.
		Mr. Randall completes Gyro survey (HHR is on). The Logging truck (Grey Ghost) is surveyed out of the C Tank Farm.
		Mr. Olson drives a solid tip to 14 ft bgs.
	16:30	The site and equipment is secured.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 57	*DATE*: 5-26-06 (Friday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GAMMA LOGGING AND SAMPLE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 12.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	14.0 ft	26.0 ft

BORING DEPTH (include sampling depth):

C5105: 28.2 FT BGS

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 8.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
62 - 71 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 14.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 26.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 4.5 ft
Total Drive String Length	= 30.5 ft

SAMPLE SUMMARY

SAMPLE B1JFP3 26 – 28.2 100% Recovery

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	Pickup masks and racks. Plan of the Day (Safety Topic: Work Ethics). Discuss anticipated daily operations.
08:00	08:30	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
08:30	09:00	Drive pipe to a depth of 26 feet bgs.
09:00	10:00	Mr. Randall enters C Tank Farm to conduct Gamma logging. Gamma logging completed at 10:00. A spike of ~32 cps was seen @ ~17 ft bgs (piperun).
10:00	10:45	Pull pipe from boring. No radiological contamination noted.
10:45		Install sampler and run to depth.
		Remove the Key.
	11:30	Drive a sampler from 26 to 28.2 ft bgs. 100% Recovery with moist sand.
11:30		Remove sampler from the boring.
	12:45	Mr. Hogan packages sample.
		Disassemble guide and set-up for driving pipe.
		Secure site and equipment.
	16:30	Undress and exit C Tank Farm. Conduct daily summary.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 58	*DATE:* 5-30-06 (Tuesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DRIVE AND GAMMA LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 57.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	26.0 ft	83.0 ft

BORING DEPTH (include sampling depth):

C5105: 83.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0 Hours

WEATHER CONDITIONS (373-2716)
62 - 71 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); R. Price (NW Geophysics); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	Pickup masks and racks. Plan of the Day (Safety Topic: Procedures). Discuss anticipated daily operations.
08:00	08:50	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
08:50	09:20	Set-up angle bracket. Initiate driving pipe.
09:20	12:00	Drive pipe to a depth of 83 ft bgs. Undress and exit C Tank Farm.
12:00	12:40	Lunch
12:40	13:45	Dress and enter C Tank Farm. A tag revealed that the sampler has not opened.
13:45		Mr. Price enters C Tank Farm to conduct Gamma logging.
	15: 10	Gamma logging completed for the day. Gamma logging will continue tomorrow.
15:10		Secure site and equipment.
	15:30	Undress and exit C Tank Farm.
15:30	16:30	Review daily operations.
		NOTE: Monday the 29th was a Holiday.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 59	*DATE:* 5-31-06 (Wednesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GAMMA AND MOISTURE LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	83.0 ft	83.0 ft

BORING DEPTH (include sampling depth):

C5105: 83.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:

1.5 Hours

WEATHER CONDITIONS (373-2716)

58 - 73 degrees, high clouds

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 83.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); B. Randall (NW Geophysics); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	*TIME* TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:30	Pickup masks and racks. Plan of the Day (Safety Topic: Sharp Objects and correct handling). Discuss anticipated daily operations. Mr. Randall is having problems with ACE. The system has changed and several personnel are not able to ACE until Respirator Training has faxed the training sheet. Ace complete @ 08:45.
09:30	08:30	Dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
	10:30	Gamma logging is initiated. The C Tank Farm is closed due to an Ammonia smell on the East side. Personnel exit and undress.
		Lunch and discuss C5107 completion operations.
	11:55	The C Tank Farm is open. Personnel dress and enter C Tank Farm.
		Run Gamma logging. The tool was pushed to depth with 0.75 inch PVC tubing.
		Gamma logging complete.
15:05		Secure site and equipment. Personnel undress and exit.
	16:30	Download data.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 5-31-06
SIGNATURE: Kent Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 60	*DATE:* 6-01-06 (Thursday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: GYRO AND MOISTURE LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	83.0 ft	83.0 ft

BORING DEPTH (include sampling depth):

C5105: 83.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0.5 Hours

WEATHER CONDITIONS (373-2716)
55 - 73 degrees, high clouds

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 83.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; K. ; D. Dudley; S. Snook (Op.): J. Clayton; P. Templeton (HPTs); R. Price (NW Geophysics); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:00	Pickup masks and racks. Plan of the Day (Safety Topic: Electrical Outlet Strips and the recent fire @ MO-407). Discuss anticipated daily operations.
08:00	08:45	Mr. Price evaluates Gyro and logging truck. Stage the Grey Ghost at the C Tank Farm gate.
08:45	10:30	Mr. Price and Olson dress and enter C Tank Farm. Conduct site and equipment inspection. No deficiencies noted. Air samplers are operating.
10:30	11:00	Set-up Gyro and initiate warm-up period. Waiting for HHR to be turned off (0.5 hr).
11:00	12:00	Gyro complete. Personnel come out of C Tank Farm for lunch.
12:00	12:40	Lunch The Gyro data is downloaded and evaluated. The data looks good.
12:40		Mr. Price and Repko dress and enter C Tank Farm to conduct Moisture logging.
	13:50	The Grey Ghost is secured and pulled out of the C Tank Farm. No radiological contamination was noted.
		Moisture logging was completed to 30 ft bgs.
		Personnel secure site and equipment.
	15:30	Exit C Tank Farm.
15:30	16:30	Personnel hydrate and discuss daily operations.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 8-10-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 61	*DATE*: 6-02-06 (Friday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: MOISTURE LOGGING	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	83.0 ft	83.0 ft

BORING DEPTH (include sampling depth):

C5105: 83.0 FT BGS

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 8.5

DOCUMENTED DOWNTIME:
5.0 Hours

WEATHER CONDITIONS (373-2716)
55 - 65 degrees, slight breeze with rain

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 83.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; Pete Gomez; S. Snook (Op.): G. Williams; Keith Sykes (HPTs); B. Randall (NW Geophysics); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	Pickup masks and racks. Discuss anticipated daily and upcoming operations.
	10:39	A problem with resources this morning. Plan of the Day (Safety Topic: Slick plastic due to rain and poor vision due to masks fogging up). HPT's are tracking down the Source custodian. The source custodian arrives and signs out the Source. Downtime 3 hrs.
10:39		Mr. Randall and Repko dress and enter C Tank Farm.
		The Canopy is set-up to keep personnel and equipment out of the rain.
		The Moisture logging is initiated.
		Moisture logging is complete. Secure site and equipment. Undress and exit the C Tank Farm.
	13:00	Moisture logging data is downloaded and printed.
	16:30	Down the rest of the shift due to the Alpha equipment survey requirement in the RWP.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 8-10-06
SIGNATURE: Kurt Reynolds

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DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105	*WELL NUMBER*: N/A	*REPORT NUMBER*: 62	*DATE*: 6-05-06 (Monday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: SAMPLE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	83.0 ft	83.0 ft

BORING DEPTH (include sampling depth):

C5105: 83.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0.5 Hours

WEATHER CONDITIONS (373-2716)
62 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 83.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY

Sample

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook; D. Dudley (Op.): J. Clayton; K. Hartielius (HPTs); B. Randall (NW Geophysics); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:15	Pickup masks and racks. Ace to enter C Tank Farm.
08:15	08:45	Conduct POD. Subject is life vests and recent accident on the Yakima river.
08:45	09:00	Dress and enter C Tank farm.
09:00		Conduct site and equipment inspection. No deficiencies noted.
		Pull NW Geophysics equipment from C Tank Farm.
		Initiate pulling Key. Key removed.
		HPT coverage will be increased to two after lunch. Pulling the sample will require two HPT's.
	10:45	Undress and exit C Tank Farm.
10:45	11:25	Lunch
11:25		The Moisture log Source was transferred to SMURF. Support HPT arrives at noon.
	12:20	Dress and enter C Tank Farm.
12:20		Drive sample @ 12:20. Take to RBA and breakdown. 100% recovery. No Radiological contamination detected. Damp material in the shoe.
		Drive pipe to decommission the boring.
	16:30	Secure site and equipment. Undress and exit C Tank Farm.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 8-10-06
SIGNATURE: [illegible]

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105 / C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 63	*DATE*: 6-06-06 (Tuesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: DECOMMISSION C5105 AND SET-UP C5107	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	83.0 ft	83.0 ft

BORING DEPTH (include sampling depth):

C5105: 0.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0.5 Hours

WEATHER CONDITIONS (373-2716)
68 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 83.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook; D. Dudley (Op.): J. Clayton; p. tEMPLETON (HPTs); B. Randall (NW Geophysics); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:00	Pickup masks and racks. Also pick-up water (potable) and cement.
08:00		POD Discuss the Umatilla wood plant accident. A death occurred when the equipment switch had been rewired to eliminate a safety feature. The wood shot out of the wood chipper striking a man in the back of the head causing a death. OSHA is looking into the 5 month old accident. Fines will be handed out.
		Decommission boring C5105. Back-pull rods and add cement. 43 gallons of cement added. 50 lb sack of crumbles added to the surface.
	11:40	Survey out drive rods and key rods. Place at the wash off pad. Undress and exit C Tank Farm.
11:40	12:20	Lunch
12:20	13:45	Remove pins (6) and plate. 12:30 Temperature is 80 F and WBGT is 75 F.
	13:51	Temperature is 84 F and WBGT is 80 F. Work is 50/50.
		Set Plate at C5107.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 8-10-06
SIGNATURE: Kent Reynolds

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105 / C 5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 64	*DATE*: 6-07-06 (Wednesday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: COMPLETE SET-UP ON C5107 AND INSTALL RESISTIVITY PROBE	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	83.0 ft	56.0 ft

BORING DEPTH (include sampling depth): C5107: 56.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME: 0.5 Hours

WEATHER CONDITIONS (373-2716) 65 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 83.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY

N/A

OPERATOR: KC Olson

WA LICENSE #: 1976, M. Repko; S. Snook; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs); H. Snydor (Project Manager).

Skoglie (Duratek)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:00	Pickup masks and racks. Also pick-up bentonite.
08:00	08:25	POD Discuss Tripping Hazards.
08:25	08:50	Lay out the probe and mark off pre-determined points. Cut wire for installation.
08:50	09:05	Dress and Enter C Tank Farm.
09:05		Conduct site and equipment inspection. No deficiencies noted.
		Set-up HHU. Temperature is 79 F and WBGT is 74 F @ 10:30.
	11:45	Tag at 62.2 ft bgs. Add 4 ft rod. Pull drive rod back 1 ft. knock out drive tip. Out of air.
11:45	12:25	Lunch
12:25		Dress and enter C Tank Farm.
		Temperature 82 F and WBGT is 77 F @ 13:00.
	13:30	Add sand to a depth of 60.5 ft bgs. Place the probe at a depth of 60.5 ft bgs. Add sand and back pull drive pipe to a depth of 52 ft bgs. The sand depth is 56 ft bgs.
		Add 2 gallons of saline solution (2 cups salt to 5 gallons water). The water is below the drive pipe.
		Site and equipment secured.

REPORT BY: D.E. Skoglie
TITLE: Duratek Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 8-10-06
SIGNATURE: [signature]

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.:C5105 / C5107	*WELL NUMBER*: N/A	*REPORT NUMBER*: 65	*DATE*: 6-08-06 (Thursday)
CONTRACT NUMBER: RC6001	*START CARD NO*: S27627/A30593	*RIG MODEL/NO*:Hydraulic Hammer Unit P9873	
PURPOSE: COMPLETE DECOMMISSIONING AND INSTALLATION OF RESISTIVITY PROBE AT C5107	*REFERENCE*: DTS-DOW-016	*LOCATION*: C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE*: 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	56.0 ft	0.0 ft

BORING DEPTH (include sampling depth):

C5107: 0.0 FT BGS

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 9.5

DOCUMENTED DOWNTIME:
0.5 Hours

WEATHER CONDITIONS (373-2716)
70 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 83.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 83.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 3.0 ft
Total Drive String Length	= 86.0 ft

SAMPLE SUMMARY
N/A

OPERATOR: KC Olson
WA LICENSE #: 1976, M. Repko; S. Snook; D. Dudley (Op.): J. Clayton; P. Templeton (HPTs);
Reynolds (Energy Solutions/ES)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:00	Pickup masks and racks.
08:00	08:25	POD Discuss today's tasks and objectives.
08:25	09:00	Dress and Enter C Tank Farm
09:00	9:40	Conduct site and equipment inspection. No deficiencies noted. Back pull pipe to approximately 20+ feet of pipe run while adding bentonite
09:40	10:05	Bottle change and rest in change trailer.
10:05	10:45	Enter farm. Complete probe casing removal. Prepare to remove surface plate
10:45	11:00	Bottle change and work rest. Temperature is 73 F and WBGT is 65 F, winds SW at steady 14 gusts to 21 mph @ 10:50
11:00	11:35	Enter farm and continue rig and support equipment removal. Place surface protection and cement in place.
11:35	12:50	Bottle change and lunch.
12:50	13:45	Dress and enter farm. Move HHU to RBA and continue to clean-up work area. Survey all remaining probe pipe, sampling equipment, and HHU rig out of farm. Crew out of farm.
13:45	16:00	Clean up area and move rods, materials to pipe yard. Secure work area.
	16:30	Site and equipment secured.

REPORT BY: K D Reynolds
TITLE: ES Field Supervisor
SIGNATURE: David E. Skoglie

REVIEWED BY: D Skoglie
TITLE: ES Field Project Manager
DATE: 8-10-06
SIGNATURE: Kent Rubb

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

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WELL I.D.: ~~C5105~~ DEB 8/10/06	*WELL NUMBER:* N/A	*REPORT NUMBER:* 66	*DATE:* 6-09-06 (Friday)
CONTRACT NUMBER: RC6001	*START CARD NO:* S27627/A30593	*RIG MODEL/NO:* Hydraulic Hammer Unit P9873	
PURPOSE: COMPLETE DECOMMISSIONING AND INSTALLATION OF RESISTIVITY PROBE AT C5107	*REFERENCE:* DTS-DOW-016	*LOCATION:* C-Tank Farm	
REFERENCE MEASURING POINT: Ground Level	*TOTAL SHIFT FOOTAGE:* 0.0 ft		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
2.5 " OD	N/A	CS	Removable Point, 2.6 " OD	0.0 ft	0.0 ft

BORING DEPTH (include sampling depth): N/A

START TIME: 07:00
END TIME: 13:30
CONTRACTOR TIME: 0.5

TOTAL TIME: 8.5

DOCUMENTED DOWNTIME:
0.5 Hours

WEATHER CONDITIONS (373-2716)
66 degrees

CASING SUMMARY

Bottom of 2.5 " OD casing (start of shift w/bk pull)	= 0.0 ft
Bottom of 2.5" OD casing (end of shift w/bk pull)	= 0.0 ft
Casing (2.5 in OD) stick up (end of shift)	= 0.0 ft
Total Drive String Length	= 0.0 ft

SAMPLE SUMMARY
N/A

OPERATOR:
M. Repko; S. Snook; D. Dudley
(Op.): P. Templeton (HPT); H Sydnor (CHG Tech Rep)
Reynolds (Energy Solutions/ES)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:50	Pickup masks and racks.
07:50	08:15	POD Discuss today's tasks and objectives. Safety Mtg. Discuss forklift and spotter safety.
08:15	09:00	Electricians on site- De-energize generator and trailer hook-ups
09:00	9:40	Dress and enter farm. Move angle plate and remaining support equipment out of farm.
09:45	9:55	Bottle change and rest in change trailer.
9:55	10:30	Enter farm. Complete cleanup-remove air samplers-Rudy cart. Pick-up work zone
10:30	3:15	Clean-up RBA and area around support trailers. Haul materials to Pipe Yard
3:15	3:30	Secure area.

REPORT BY: K D Reynolds
TITLE: ES Field Supervisor
SIGNATURE: Kurt Reynolds

REVIEWED BY: D Skoglie
TITLE: ES Field Project Manager
DATE: 8/10/06
SIGNATURE: David C Skoglie

APPENDIX K

EXPLANATION OF DOWN TIME FOR ANGLE BOREHOLES

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EXPLANATION OF DOWN TIME FOR ANGLE BOREHOLES

Excessive Wind = 38 hours. CH2M HILL procedures call for tank farm work stoppage when winds are in excess of 20 miles per hour.

Excessive Heat = 7 hours. CH2M HILL procedures specify a work/rest regiment dependant on the wet bulb globe thermometer temperature.

No Operator Support = 7 hours.

Training = 11.5 hours. Personnel attending CHAT training & safety expo.

Gyroscope Issues = 35 hours. Job shut down due to unacceptable gyroscope data.

Equipment Issues = 12 hours. Waiting for calibration source, a contaminated air sampler and an ammonia smell detected in the tank farm.

Administrative Issues = 2.5 hours. Waiting for gyroscope interpretation.

Rain Delay = 5 hours. RWP restrictions do not allow materials to be removed from the ground due to inability to survey wet material.

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APPENDIX L

SAMPLING LOGBOOK ENTRIES AND CHAIN OF CUSTODY FORMS (ANGLE)

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Fluor Hanford Inc.
SAMPLING AUTHORIZATION FORM

SAF NUM V06-001 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109 **REV** 0

PROJECT	C-Tank Farms		
PROGRAM/PROJECT TYPE	Baseline Infor Other		
OPERABLE UNIT	NONE		
REQUESTER	SYDNOR, HA	**CHARGE CODES**	
TASK MANAGER	WATSON, DJ		
PROJECT COORDINATOR	TRENT, SJ		
ESTIMATED START DATE	3/9/2006	**SAMPLE AREA**	200 East
ESTIMATED COMPLETION DATE	9/30/2006	**MATRIX**	SOIL
ESTIMATED NUMBER OF SAMPLES	12		

SAMPLING ORGANIZATIONS

Duratek Federal Services

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 C5104 - C5109.

COC COMMENT

** Each sample will consist of 3 drill liners.

B1HY25
B1HY26
Y27
Y28
Y29
Y30
Y31
Y32
Y33
Y34
Y35
Y36

DATE OF PRINT 03/16/2006 SAF STATUS Issued STATUS DATE 3/7/2006 9:25:00 A PAGE 1 of 2

Fluor Hanford Inc.
SAMPLING AUTHORIZATION FORM

SAF NUM V06-001 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109 **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) 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) 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 03/16/2006 SAF STATUS Issued STATUS DATE 3/7/2006 9:25:00 A PAGE 2 of 2

Fluor Hanford Inc.
SAMPLING AUTHORIZATION FORM

SAF NUM V06-002 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109 - QC Samples **REV** 0

PROJECT	C-Tank Farms
PROGRAM/PROJECT TYPE	Baseline Infor Other
OPERABLE UNIT	NONE

REQUESTER	SYDNOR, HA	**CHARGE CODES**	
TASK MANAGER	WATSON, DJ		
PROJECT COORDINATOR	TRENT, SJ		

ESTIMATED START DATE	3/9/2006	**SAMPLE AREA**	200 East
ESTIMATED COMPLETION DATE	9/30/2006	**MATRIX**	WATER
ESTIMATED NUMBER OF SAMPLES	12		

SAMPLING ORGANIZATIONS

Duratek Federal Services

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 C5104 - C5109.

COC COMMENT

** Each sample will consist of 3 drill liners.

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Fluor Hanford Inc.
SAMPLING AUTHORIZATION FORM

SAF NUM V06-002 **SAF TITLE** "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109 - 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	G/P 1000 mL	Full QC	Cool 4C	28 Days/48 Hours
TOC - 9060 (Tier 1)	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) 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

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Project ANGLE HOLE 2[illegible]-C-152 Notebook No [illegible]PTS-SAWS-H87 35

Continues from Page NONE

3-23-06
0930 ON SITE C-FARM
Pre-job brief by Lyle Amos, Plan to Push SAMPLER TO 28' AND THEN ~~DRIVE~~ PULL KEY AND Push to 30'.
ATTENDEES AT PRE-JOB, Scott Snook (NCO), JA Clayton (HPT), Kelly Olson (Driller), MARK REPKO (Driller Helper), RJ Klein Jr (HPT), K.B. Hulse (NCO SAMPLER), Lyle O. Amos (PIC).
1010 Driller in Farm ATTACHING SAMPLER ON BORE HOLE # C5108
1020 Pushed SAMPLER TO 28' SAMPLE DEPTH. STARTED TRIPPING IN RODS TO REMOVE KEY,
1130 UNABLE TO GET RODS TO catch ON KEY, REMOVED RODS AND EXITED FARM.
1310 BACK IN FARM WITH modified catch for KEY, TRIPED IN RODS
1350 PULLED RODS AND FOUND KEY ON RODS
1355 DRIVING SAMPLER TO 30'
1400 PULLING SAMPLER
1430 SAMPLER ON BREAKDOWN TABLE, NO DETECTABLE RAD.
1510 SAMPL TAKEN, OUT OF FARM.

3-23-06

DIRECT PUSH ANGLE HOLE EXPLORATION 241-C-152 DIVERSION BOX

DATE: 3/23/06	TIME: 1400		SAMPLE #: B1HY25	
COC#: V6-001-001	BOREHOLE #: C5108		Interval: 28'-30'	
	shoe	A	B	C
Depth	29.5'-30'	29'-29.5'	28.5'-29'	28'-28.5'
% RECOVERY	100%	100%	100%	100%
COMMENTS: INET silty mud outside liner "A" and halfway up liner "B".				

3-23-06

1530 SAMPLES STORED IN 6269 Locked Refridgerator.
one ATTACHMENT ON THIS PAGE

Continued on Page 36

Read and Understood By

B Hulse 3-23-06

Signed Date Signed Date

6

Project ANGLE HOLE 24' C-152 Notebook No DTS-SAWS-497

Continues from Page 35

03-27-06

0800 STOPED BY ACES STATION FOR WEEKLY ACE ON RWP CO-243 Rev 1

0830 ON SITE C-FARM, PREPARED NEXT SAMPLER

0915 Pre-Job, Plan to DRIVE SAMPLER TO 66' and TAKE 3rd SAMPLE AFTER LOGGING.

0935 POURED DI WATER OVER SHOE, LINER, SPOON, AND BOWL for an Equipment blank. Water TRANSFERED TO 1 Liter Poly bottle Lot # 2051020 SAMPLE # B1HY58

1000 TRIPPING IN SAMPLER

1010 RELEASED SAMPLES TO J.G. HOGAN TO BE TRANSPORTED TO THE LAB.

1130 Reached 66' out for Lunch

03-28-06

Continued Logging THE Hole

03-29-06

0830 ON SITE C-FARM, ON HOLD UNTIL DATA IS REVIEWED

0915 RECEIVED OK TO TAKE SAMPLE, Pre-Job Plan of THE 3rd DAY HELD

0945 DRILLER IN FARM

0950 PULLING KEY RODS

1000 DRIVING SAMPLER Borehole C5108 SAMPLE # B1HY26 66'-68'

1005 PULLING SAMPLER

1125 SAMPLER ON TABLE 100% Recovery

1145 OUT OF FARM.

DATE: 3/29/06 TIME: 1005		SAMPLE #: B1HY26		
COC#: V06-001-002 BOREHOLE #: C5108		Interval: 66'-68'		
	shoe	A	B	C
Depth	67.5'-68'	67'-67.5	66.5'-67'	66'-66.5'
% RECOVERY	100%	100%	100%	100%
COMMENTS: SALT AND PEPPER COARSE SAND, DRY				
no detectable Rad.				

3-29-06

ONE ATTACHMENT ON THIS PAGE

Continuation Page 37

Read and Understood By

KB Halse 3-29-06

Signed Date Signed Date

Project ANGLE HOLE 24' C-152 Notebook No. TS-SAWS-497 31

Continues from Page 36

3-31-06

0830 ON SITE C-FARM, Rig Had been setup on Bore hole 5109, A Tip had been driven to 14', the hole had been Logged.

0900 OPERATERS + Drillers in Farm to pull tip

0940 ATTACHED SAMPLER and began pushing back down open hole.

0945 Sampler at depth of 14.5', pulling Key

0955 Driving sampler, sampler drove too easy.

1005 Begain pulling sampler.

1020 Sampler on table 50% recovery including shoe. SAMPLE # B1HY27

DATE: 3-31-06 TIME: 1005		SAMPLE #: B1HY27		
COC#: V06-001-003	BOREHOLE #: 5109		Interval: 14.5-15.5'	
	shoe	A	B	C
Depth	15.0'-15.5'	14.5'-15.0'	N/A	N/A
% RECOVERY	100%	100%	<5%	0
COMMENTS: Drove Sampler From 14.5'-16.5' Filled shoe and "A" liner, Soil moist silty SAND				

3-31-06

1040 Put on solid tip and Driving to 31' next sample depth.

1100 SAMPLE Being taken to the lab.

4-3-06

Logger in Farm Logging hole with gamma and moisture probe.

1335 Done Logging, Drillers in Farm to pull tip and attach sampler.

1405 ATTCHED SAMPLER and began pushing back down the open hole.

1435 SAMPLER TO Depth 31.5' pulling Key

1445 Drillers out of Farm

ONE ATTACHMENT ON THIS PAGE

Continued on Page 38

Read and Understood By

Signed	Date	Signed	Date
KB Hulse KB Hulse	4-3-06		

Project ANGLE HOLE 241-C-152 Notebook No OTS-SAWS-H97

Continues from Page 37

4-4-06

0830 ON SITE AT C-FARM, Daily Planning meeting. Old sampler used on 4-3-06 Key came out while pushing to 31' feet. Needed to repair Key remover for Heavy duty SAMPLER.

1015 Drillers IN FARM PULLING Failed sampler. Plan to use Heavy duty sampler.

1100 New sampler ON Drill string. OFF SITE.

1300 ON Site SAMPLER TO Depth, Key Pulled

1335 Driving SAMPLER

1338 PULLING SAMPLER

1430 SAMPLER PACKAGED, Lost shoe & "A" Liner contents

OFF SITE

DATE: 4-4-06	TIME: 1338		SAMPLE #: B1H428	
COC#: V06-001-004	BOREHOLE #: 5709		Interval: 31'-33'	
	shoe	A	B	C
Depth	32.5-33	32-32.5	31.5-32	31-31.5
% RECOVERY	0	0	90%	100%
COMMENTS: Dry Salt + Pepper SAND, Lost contents of Liner "A" and shoe during retrevial.				

4-5-06 SAMPLES FROM 4-4-06 Delivered to LAB.

1300 ON SITE, Logging the hole. Plan to Pull Key AND DRIVE SAMPLER AFTER LOGGING is finished.

1345 Drillers IN Farm preparing to Pull KEY

1430 Key out Due to Lateness plan to Drive sampler Tomarrow.

1440 OFF SITE.

ONE ATTACHMENT ON THIS PAGE

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Read and Understood By

KB Hulse 4-5-06

Signed Date Signed Date

Project ANGLE Hole 24'-C-152 Notebook No. ATS-SAWS-H97

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4-6-06

0830 ON SITE AT C-FARM, Plan of the day to Drive sampler, Decomission hole and do maitance on Rig to move to next hole.

0910 Drillers in FARM, (Kelly Olson, Mack Repko) Dave Skoglie (PIC), Paul Templeton and Jeff Clayton (HPT) Scott Swook (NCO), Karl B Hulse (NCO/Sampler)

0920 Driving Sampler Bore hole 5109 45'-47'

0921 Done Driving SAMPLE # B1H429

0925 PULLING SAMPLER

1020 SAMPLER AT SURFACE NO Detectable Rad

1030 Sampler on TABLE 100% Recovery

1100 CHANGING Bottles, Plan to decomission hole and move Rig.

DATE: 4-6-06	TIME: 0921	SAMPLE #: B1H429		
COC#: 106-001-005	BOREHOLE #: 5109		Interval: 45'-47'	
	shoe	A	B	C
Depth	46.5'-47'	46'-46.5'	45.5'-46'	45'-45.5'
% RECOVERY	100%	100%	100%	100%
COMMENTS: Dry Salt + Pepper SAND				

1130 TAKING SAMPLES TO LAB.

4-11-06

0910 ON SITE, Drillers IN Farm To Pull solid Tip. The Tip had been driven to 18.5' and Logged.

0925 SAMPLER ON Rod Driving to SAMPLE Depth

1030 Pulling Key

1047 Driving Sampler

1050 STARTED PULLING SAMPLER

1130 SAMPLER ON The TABLE 100% Recovery SAMPLE # B1H430 Bore hole 5106.

1200 OFF SITE SEE ATTACHMENT ON page 40 one ATTACHMENT on THIS PAGE.

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Read and Understood By

KB Hulse 4-11-06

Signed Date Signed Date

0 Project ANGLE HOLE 241-C-152 Notebook No DTS-SAWS-1497
Continues from Page 39

DATE: 4-11-06 TIME: 1050		SAMPLE #: B1HY30		
COC#: V06-001-006	BOREHOLE #: 5106		Interval: 18.5'-20.5'	
	shoe	A	B	C
Depth	20'-20.5'	19.5'-20'	19'-19.5'	18.5'-19'
% RECOVERY	100 %	100 %	100 %	100 %
COMMENTS: shoe & Liner A Damp, salt & peper SAND/Gravel				

4-17-06

4-17-06
Bore hole 5106 Depth of 90'. A SAMPLER HAD Been ATTACHED AND DRIVEN TO 90' but when it was Logged IT WAS Determined THAT THE SAMPLER Had come open and was full. The SAMPLER was Removed and another SAMPLER ATTACHED and PUSHED TO 80'.

0830 ON SITE, Daily Pre-job, Plan to drive the last 10' pull the Key and take a sample.
0900 Drillers in Farm doing equipment safety check AND Fueling TRACTOR/Rig.
0915 STARTED UP RIG AND BEGAN TO Drive to Depth
0940 SAMPLER AT 90' Began to pull Key By tripping IN small Rod.
1000 STOPPED TO change AIR Bottles.
1010 BACK IN THE PROCESS TO Pull Key
1100 Come out for Lunch had two more Rods to pull.
1254 Driving SAMPLER
1256 Done Driving Begining to pull sampler
1430 SAMPLER ON TABLE 100 % Recovery

DATE: 4/17/06 TIME: 1256		SAMPLE #: B1HY31		
COC#: V06-001-007	BOREHOLE #: 5106		Interval: 90'-92'	
	shoe	A	B	C
Depth	91.5'-92'	91'-91.5'	90.5'-91'	90'-90.5'
% RECOVERY	100 %	100 %	100 %	100 %
COMMENTS: SALT AND Pepper Sand/Gravel with moisture in liner c				

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KB Hulse [signature] 4/17/06
Signed Date Signed Date

Project ANGLE HOLE 241 C-152 Notebook No. DTS-SAWS-497 41

Continues from Page 40

4-19-06

1000 ON SITE, Drillers in farm on borehole 1507. Plan to Drive to 17' Log and then Sample. Left a sampler for Drillers.

1130 OFF SITE

1345 Jim Hogan ON SITE, ~~SAMPLER HAD BEEN~~ BEEN ~~Driven to 17', Key had been pulled~~ 4-20-06

1402 Drove sampler to Depth of 17', Drillers CHANGED OUT Bottles

1418 Tripping in RODS to PULL KEY

1428 Key and Rods out

1430 Driving Sampler

1432 Done, Beginning to Pull sampler

1455 SAMPLER AT SURFACE, Breaking shoe + HEAD

1500 SAMPLER ON TABLE 100% RECOVERY, Shoe, "A" Liner and part of "B" Definetly Damper than "C". Fine silty SANDS NO Gravel NO RAD

DATE: 4/19/06	TIME: 1432	SAMPLE #: B1HY32		
COC#: V06-001008	BOREHOLE #: ~~1507~~ 5107	Interval: 17'-19'		
	shoe	A	B	C
Depth	18.5'-19.0'	18.0'-18.5'	17.5'-18.0'	17'-17.5'
% RECOVERY	100	100	100	100
COMMENTS:				
~~Moisture~~ MOISTURE INTERVAL IN MIDDLE OF "B" LINER. FINE SILTY SAND. NO RAD				

1520 OFF SITE moving SAMPLES TO WSCF FOR STORAGE

4-20-06 0900 ON SITE, PLAN TO PUSH TO 22.5' AND LOG HOLE THEN SAMPLE.

1320 SAMPLER AT 22.5' STARTING TO PULL KEY

1350 KEY OUT DRIVING SAMPLER

1352 Driven 25 inches STARTING to PULL SAMPLER

1408 SAMPLER TO SURFACE Breaking shoe + head

ONE ATTACHMENT ON THIS PAGE

Continued on Page 42

Read and Understood By

KB Hulse KB Hulse 4-20-06

Signed Date Signed Date

Project ANGLEHOLES 241-A-152 Notebook No DTS-SAWS-H97
Continues from Page 41

4-20-06
1425 SAMPLER ON TABLE 100% Recovery sample INTERval 22.5'-24.5', 100% Recovery Shoe Dry, more moisture in Liner "C" than "B" and than "A"

DATE: 4/20/06 TIME: 1352		SAMPLE #: B1HY33		
COC#: V06-001-009	BOREHOLE #: ~~15075107~~		Interval: 22.5'-24.5'	
	shoe	A	B	C
Depth	24-24.5	23.5-24	23-23.5	22.5-23
% RECOVERY	100%	100%	100%	100%
COMMENTS: Shoe Dry sand + silt Liner A Damper at top silt sand, Liner B + C were ~~moister~~ more Damp than A + C more than B silty sand				

4-20-06

4-20-06
1445 ATTACHED SAMPLER AND PLAN TO DRIVE TO Bottom with sampler on
1450 Driller out of Farm OFF SITE, SAMPLES TAKEN TO WSCF TO BE STORED
4-21-06
Drilling NOT allowed due to wind
SAMPLES TAKEN FROM WSCF TO 325 LAB.
4-24-06
NOT ALLOWED IN FARM Due TO HIGH WINDS
4-25-06
0830 Pre-job, Plan to drive to 59', Log and then Sample
0845 Drillers IN FARM doing SAFETY checks
0915 STARTED Driving
1040 SAMPLER Driven to 59'
1050 Preparing to START logging
1200 OFF SITE

Continued on Page 43

Read and Understood By

KB Hulse 4-25-06
Signed Date Signed Date

Project ANGLE HOLE 241-C-152 Notebook No. DTS-SAWS-H97 43
Continues from Page 42

4-26-06
0830 ON SITE, Plan to Re Log with GYRO, AND THEN Sample
1250 Drillers Going IN TO Sample, Key had been pulled before Lunch
1255 STARTED DRIVING SAMPLER
1258 SAMPLE # BIHY34, PULLING Sampler.
1345 SAMPLER TO SURFACE, Drillers changing bottles
1405 SAMPLER ON TABLE 95% Recovery

DATE: 4/26/06	TIME: 1258	SAMPLE #: BIHY34		
COC#: V06-001-010	BOREHOLE #: 5107		Interval: 59'-61'	
	shoe	A	B	C
Depth	60.5-60.8	60-60.5	59.5-60	59-59.5
% RECOVERY	20%	100%	100%	100%
COMMENTS: SALT AND PEPPER SAND + GRAVEL				
Shoe Lost bottom 80%, slightly moist				

4-26-06

4-26-06 ONE FORM ATTACHED THIS PAGE
1420 Drillers Pushing back down hole to install ~~ins~~ an INSTRUMENT
1425 OFF, TAKING SAMPLES TO WSCF FOR STORAGE To be shipped to Lab on 4-27-06

5-2-06
1100 ON SITE, DRILLERS PULLING DRILL STRING FROM BOREHOLE #5104
1120 ATTACHING SAMPLER
1130 LOWERING SAMPLER INTO HOLE
1142 SAMPLER DRIVEN TO START OF SAMPLE DEPTH 13.5'
1153 REMOVING KEY
1202 DRIVING SAMPLE 13.5' - 15.5'
1205 DONE SAMPLE # BIHY35 PULLING SAMPLER
1217 SAMPLER TO SURFACE
1225 SAMPLER ON TABLE 100% RECOVERY Continued on Page 44

Read and Understood By

KB Halse KB Halse 6-2-06
Signed Date Signed Date

Project ANGLEHOLE 241-C-152 Notebook No. DTS-SAWS-H97

Continues from Page 43

-2-06 (CONT.)
1245 EXITING SITE. SHIPPING SAMPLES TO 325 LAB

5-2-06

DATE: 5-2-06	TIME: 1205	SAMPLE #: BIHY35	
COC#: V06-001-011	BOREHOLE #: 5104	Interval: 13.5'-15.5'	
	shoe	A	B	C
Depth	15.0'-15.5'	14.5'-15.0'	14.0'-14.5'	13.5'-14.0'
% RECOVERY	100%	100%	100%	100%
COMMENTS: SOME GRAVEL AT TOP OF C LINER. MOISTURE INTERFACE IN C LINER. FINE GRAIN SALT + PEPPER SAND, SLIGHTLY MOIST. NO RAD.			

5-2-06

-17-06
1030 Jim Hogan ON SITE AS SAMPLING NCO.
SAMPLER HAD BEEN DRIVEN at 0908. DRILLERS PULLING SAMPLER But Due to Heat Drillers on a 15 min work/Rest Regiment
1145 SAMPLER ON TABLE 100% Recovery Salt + Peper SANDS
Bore hole C5104 SAMPLE # BIHY36

5-17-06

DATE: 5-17-06	TIME: 0908	SAMPLE #: BIHY36	
COC#: V06-001-012	BOREHOLE #: C 5104	Interval: 108.5 - 110.7	
	shoe	A	B	C
Depth	110.0/110.7	109.5/110.0	109.0/109.5	108.5/109.0
% RECOVERY	100	100	100	100
COMMENTS: SALT + PEPPER SANDS W/SOME GRAVEL. SOIL IS DAMP THROUGHOUT - NO RAD. DRIVE SAMPLER 26" TO ENSURE COMPACTION			

6-2-06

TWO ATTACHMENTS ON THIS PAGE

Continued on Page 45

Read and Understood By

B Hulse K S Hulse 6-2-06
Signed Date Signed Date

Project ANGLE Hole 241-C-152 Notebook No. OTS-SAWS-H97

Continues from Page 44

5-25-06

1000 ON SITE RIG SETUP ON Borehole C5105 a 30° angle Drillers IN Farm pulling solid Drive tip.

1015 Drillers ATTACHED SAMPLER AND BEGIN TO Push to Depth of 13'

1030 SAMPLER AT 13' begining to pull Key

1058 STARTED TO Drive Sampler

1100 SAMPLE TIME SAMPLE # B1JFP2, SAMPLER Drove EASY, MATERIAL seemed TO be Loose said the Drillers STARTED TO PULL THE SAMPLER when Drillers were required to clear the farm due to other work IN "C" FARM.

1400 Received OK TO ENTER THE FARM AGAIN.

1430 SAMPLER ON TABLE 75% Recovery

1500 LEFT Job SITE.

6-2-06

DATE: 5-25-06 TIME: 1100		SAMPLE #: B1JFP2		
COC#: V06-001-013	BOREHOLE #: C5105		Interval: 13'-15'	
	shoe	A	B	C
Depth	14.5-15'	14-14.5'	13.5-14'	
% RECOVERY	100%	100%	100%	0
COMMENTS: Loose non consolidated material Moist salt and peper sand and Gravel				

6-2-06

5-26-06

1140 Jim Hogan ON SITE AS NCO SAMPLER. Drillers HAD ATTACHED SAMPLER AND DRIVEN THE SAMPLE AT 1130 for Borehole C5105 26' Sample, SAMPLE # B1JFP3

1200 SAMPLER ON TABLE 100% Recovery Depth 26'-28.2' Slightly moist SAND, NO RAD

NOTE: MATERIAL FROM THE SHOE for This borehole C5105 are put IN a ONE LITER Poly Bottle Lot # 2051020.

CONTINUED ON PAGE 46

Continued on Page 46

Read and Understood By

B Hulse KB Hulse 6-2-06

Signed Date Signed Date

46

Project ANGLE HOLE 241-C-152 Notebook No. DTS-SAWS-H97

Continues from Page 45

CONTINUED 5-26-06

DATE: 5-26-06	TIME: 1130	SAMPLE #: B1JFP3		
COC#: V06-001-014	BOREHOLE #: C5105	Interval: 26'-28.2		
	shoe	A	B	C
Depth	27.5'-28.2'	27.0-27.5	26.5-27.0	26.0-26.5
% RECOVERY	100	100	100	100
COMMENTS: SLIGHTLY MOIST, NO RAD SANDS				

6-2-06

0700 ON SITE AT "C" FARM. Bore hole C5105. SAMPLER HAS BEEN AT DEPTH for TWO DAYS While Logging the Bore hole. NEED TO DO MOISTURE Log AND THEN SAMPLE CAN BE TAKEN. RAIN STARTED, may Limit ACTIVITES.

1130 Continuing to RAIN, HPTS ALLOWING THE Logging but Due to Alpha Required survey AND RAIN SAMPLE WILL NOT BE PULLED, OFF SITE

6-5-06 0830 ON SITE C-FARM, HAVE ONLY ONE HPT, PLAN TO PULL KEY AND IF A SECOND HPT is FOUND DRIVE SAMP

1315 ON SITE C-Farm. SAMPLER WAS DRIVEN AT 1220

1343 SAMPLER ON TABLE 100% RECOVERY SAMPLE # B1JFP4 83'-85' Bore hole C5105

DATE: 6-5-06	TIME: 1220	SAMPLE #: B1JFP4		
COC#: V06-001-015	BOREHOLE #: C5105	Interval: 83'-85'		
	shoe	A	B	C
Depth	84.5-85	84-84.5	83.5-84	83-83.5
% RECOVERY	100	100	100	100
COMMENTS: Salt/Pepper SAND no moisture No Detectable RAD				

TWO ATTACHMENTS ON THIS PAGE

Continued on Page NONE

Read and Understood By

KB Hulse KB Hulse 6-13-06

Signed Date Signed Date

CH2M Hill Group	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V06-001-015	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO.: V06-001	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	DATA TURNAROUND: 45 Days / 45 Days
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: Bore hole C5105 Depth 83'-85'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1JFP4		S	6-5-06	1220	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1JFP4A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1JFP4B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1JFP4C		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: KB Hulse	DATE/TIME: 6-6-06 10:22	RECEIVED BY/STORED IN: Operation Form	DATE/TIME: 6/6/06 10:22
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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			V06-001-014	PAGE 1 OF 1
COLLECTOR JG HOGAN	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO. V06-001	AIR QUALITY ☐	45 Days / 45 Days
ICE CHEST NO.	FIELD LOGBOOK NO. DTS-SAWS-H97	COA	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
SHIPPED TO PNNL Building 325	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: BOREHOLE C5105 26.0'-28.2'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1JFP3		S	5-26-06	1130	1X1000g ~~Liner~~ Poly	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 27.5'-28.2'	Cool 4C
B1JFP3A		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 27.0'-27.5'	Cool 4C
B1JFP3B		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 26.5'-27.0'	Cool 4C
B1JFP3C		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 26.0'-26.5'	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM JG HOGAN	DATE/TIME 5-26-06 1400	RECEIVED BY/STORED IN CK Brown	DATE/TIME 5-26-06 1400
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V06-001-012	PAGE 1 OF 1
COLLECTOR	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO. V06-001	AIR QUALITY ☐	45 Days / 45 Days
ICE CHEST NO.	FIELD LOGBOOK NO. DTS-SAWS-H97	COA	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
SHIPPED TO PNNL Building 325	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY36		S	5-17-06	0908	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 110.0 - 110.7	Cool 4C
B1HY36A		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 109.5 - 110.0	Cool 4C
B1HY36B		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 109.0 - 109.5	Cool 4C
B1HY36C		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 108.5 - 109.0	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM JG HOGAN	DATE/TIME 5-17-06 1515	RECEIVED BY/STORED IN Steven Baum	DATE/TIME 5-17-06 1515
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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}

BOREHOLE # C5104

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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V06-001-011	PAGE 1 OF 1
COLLECTOR: JG Hogan	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO.: V06-001	AIR QUALITY ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	DATA TURNAROUND: 45 Days / 45 Days
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: BOREHOLE #5104 13.5' – 15.5'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY35		S	5-2-06	1205	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY35A		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY35B		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY35C		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
JG Hogan	5-2-06 1450	Kevin Hayl	5-2-06 14:50

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V06-001-010	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N AIR QUALITY: ☐ DATA TURNAROUND: 45 Days / 45 Days
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO.: V06-001	
ICE CHEST NO.: SAWS 999	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA:	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: Borehole 5107 Depth 59'- 61'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY34		S	4/26/06	1258	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY34A		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY34B		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY34C		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 KB Hulse	4-28-06 1050	Steven Baum Steven Baum	4-28-06 1050
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V06-001-009	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA — TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N — DATA TURNAROUND: 45 Days / 45 Days
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109	SAF NO.: V06-001	AIR QUALITY ☐
ICE CHEST NO.: SAWS 999	FIELD LOGBOOK NO.: DTS-SAWS-H97 — COA:	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE:

POSSIBLE SAMPLE HAZARDS/ REMARKS: Borehole ~~1507~~ 5107 Sample Interval 22.5'-24.5'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY33		S	4/20/06	1352	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY33A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY33B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY33C		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM: DURATEK K.B. HULSE — DATE/TIME: 4/21/06 1050	RECEIVED BY/STORED IN: M. Valenta M. Valenta — DATE/TIME: 4/21/06 1050
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V06-001-008	PAGE 1 OF 1

COLLECTOR: JG HOGAN	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ
PRICE CODE: 8N	DATA TURNAROUND: 45 Days / 45 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109	SAF NO.: V06-001	
ICE CHEST NO.: SAWS 999	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA:	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: Borehole ~~1507~~ 5107 Sample interval 17'-19'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY32		S	4-19-06	1432	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY32A		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY32B		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY32C		S	↓	↓	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: JG HOGAN	DATE/TIME: 4/20/06 0900	RECEIVED BY/STORED IN: K. B. HULSE	DATE/TIME: 4/20/06 0900
RELINQUISHED BY/REMOVED FROM: K. B. HULSE	DATE/TIME: 4/21/06 1050	RECEIVED BY/STORED IN: M. Valenta	DATE/TIME: 4/21/06 1050
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V06-001-007	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA; TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N; DATA TURNAROUND: 45 Days / 45 Days
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109	SAF NO.: V06-001	AIR QUALITY ☐
ICE CHEST NO.: SAWS 999	FIELD LOGBOOK NO.: DTS-SAWS-H97; COA:	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: Borehole 5106 Sample interval 90'-92'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY31		S	4/17/06	1256	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY31A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY31B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY31C		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 KB Hulse	4/18/06 1150	Kenton Rod	4-18/06 11:50
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V06-001-006	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO.: V06-001	AIR QUALITY: ☐
ICE CHEST NO.: SAWS 999	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA:	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	DATA TURNAROUND: 45 Days / 45 Days
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: Borehole 5106 Sampler Driven 18.5' - 20.5'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY30		S	4-11-06	1050	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY30A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY30B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY30C		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 KB Hulse	4/11/06 1350	Cristian Tovin	4/11/06 13:50
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V06-001-005	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
KB Hulse	SYDNOR, HA	373-3967	TRENT, SJ	AIR QUALITY ☐	45 Days / 45 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
C-Tank Farm Soil Sampling-Boreholes C5104/C5109	"C" Tank Farm Soil Sampling - Boreholes C5104 - C5109	V06-001

ICE CHEST NO.	FIELD LOGBOOK NO.	COA	METHOD OF SHIPMENT
SAWS 999	DTS-SAWS-H97		GOVERNMENT VEHICLE

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
PNNL Building 325	N/A	N/A

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Borehole 5109 Sampler Driver 45'-47'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY29		S	4/6/06	0921	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY29A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY29B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY29C		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 [signature]	4/6/06 1250	CF Brown [signature]	4/6/06 1230
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V06-001-004	PAGE 1 OF 1
COLLECTOR KB Hulse	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N AIR QUALITY ☐	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO. V06-001		
ICE CHEST NO. SAWS 999	FIELD LOGBOOK NO. DTS-SAWS-H97	COA	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
SHIPPED TO PNNL Building 325	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
Bore hole 5109 SAMPLE Driven from 31' to 33'
Lost soil in shoe & Liner "A"

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY28		S	~~XSP 4-4-06~~ 4-4-06	1338	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS ~~XSP~~ 4-4-06	Cool 4C
B1HY28A		S	~~XSP 4-4-06~~		1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS ~~XSP~~ 4-4-06	Cool 4C
B1HY28B		S	4-4-06	1338	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY28C		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM KB Hulse KB Hulse	DATE/TIME 10:30 4-5-06	RECEIVED BY/STORED IN M. Valenta M. Valenta	DATE/TIME 10:30 4/5/06
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V06-001-003	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO.: V06-001	AIR QUALITY: ☐
ICE CHEST NO.: SAWS 999	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA:	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	DATA TURNAROUND: 45 Days / 45 Days
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: Borehole C5109 Driven from 14.5 - ~~15.5~~ 16.5

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY27		S	3/31/06	1005	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY27A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY27B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
~~B1HY27C~~ RSL 3-31-06		S			1X1000g Liner	~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: KB Hulse	DATE/TIME: 3/31/06 1155	RECEIVED BY/STORED IN: K. Rod	DATE/TIME: 3/31/06 11:55
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V06-001-002	PAGE 1 OF 1
COLLECTOR KB Hulse	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N AIR QUALITY ☐	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO. V06-001		
ICE CHEST NO. SAWS 999	FIELD LOGBOOK NO. DTS-SAWS-H97	COA	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
SHIPPED TO PNNL Building 325	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS
BOREHOLE C5108 Driven From 66'-68'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY26		S	3/29/06	1005	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY26A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY26B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY26C		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM KB Hulse KB Hulse	DATE/TIME 3/29/06 1310	RECEIVED BY/STORED IN Michelle Valenzo Michelle Valenzo 1310	DATE/TIME 3/29/06
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V06-001-001	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N / DATA TURNAROUND
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO.: V06-001	AIR QUALITY ☐ / 45 Days / 45 Days
ICE CHEST NO.: SAWS-406	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA:	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS: BOREHOLE C5108 DRIVEN FROM 28'-30'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY25		S	3/23/06	1400	1X500g P	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY25A		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY25B		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1HY25C		S			1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: DURATEK K.B. HULSE	DATE/TIME: 1010 MAR 27 2006	RECEIVED BY/STORED IN: DURATEK J. G. HOGAN	DATE/TIME: 1010 MAR 27 2006
RELINQUISHED BY/REMOVED FROM: DURATEK J. G. HOGAN	DATE/TIME: 1055 MAR 27 2006	RECEIVED BY/STORED IN: CF Beam	DATE/TIME: 10:55 MAR 27 2006
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(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

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		V06-002-001	PAGE 1 OF 1
COLLECTOR: KB Hulse	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N
SAMPLING LOCATION: C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION: "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109 - QC Samples		SAF NO.: V06-002	AIR QUALITY ☐
ICE CHEST NO.	FIELD LOGBOOK NO.: DTS-SAWS-H97	COA	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	DATA TURNAROUND: 45 Days / 45 Days
SHIPPED TO: PNNL Building 325	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1HY58		~~W~~ S	3/27/06	0935	1X1000mL G/P	IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1); Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}	Cool 4C

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
KB Hulse KB Hulse	3/27/06 1800	JG HOGAN J G Hogan	3-27-06 1000
JG HOGAN J G Hogan	3-27-06 1055	CK Brown Chris K. Brown	3/27/06 10:55

SPECIAL INSTRUCTIONS
Water Blank of Cleaned sample equipment

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			V06-001-013	PAGE 1 OF 1
COLLECTOR KB Hulse	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N AIR QUALITY ☐	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C-Tank Farm Soil Sampling-Boreholes C5104/C5109	PROJECT DESIGNATION "C" Tank Farm Soil Sampling - Boreholes C5104 - C5109		SAF NO. V06-001		
ICE CHEST NO.	FIELD LOGBOOK NO. DTS-SAWS-H97	COA	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
SHIPPED TO PNNL Building 325	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS Borehole C5105 Depth 13'-15'

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1JFP2		S	5-25-06	1100	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1JFP2A		S	5-25-06	1100	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
B1JFP2B		S	5-25-06	1100	1X1000g Liner	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Cool 4C
~~B1JFP2C~~	~~[illegible] 5-25-06~~	~~S~~			~~1X1000g Liner~~	~~SEE ITEM (1) IN SPECIAL INSTRUCTIONS~~	Cool 4C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME 1100	RECEIVED BY/STORED IN	DATE/TIME 1100
KB Hulse [signature]	5-26-06	JG Hogan [signature]	5-26-06
RELINQUISHED BY/REMOVED FROM	DATE/TIME 1400	RECEIVED BY/STORED IN	DATE/TIME
JG Hogan [signature]	5-26-06	CF Brown [signature]	5/26/06 1400
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** Each sample will consist of 3 drill liners and one 500 ml Poly bottle containing soil from the shoe.**
(1)IC Anions - 9056 (Tier 1); TOC - 9060 (Tier 1) {TOC, TOTCARB}
Conductivity - 9050 (Tier 1); pH (Soil) - 9045 (Tier 1); GAMMA ENERGY ANALYSIS (Tier 1); Actinides ICPMS (Tier 1) {Tc-99}

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

APPENDIX M

SMALL DIAMETER SLANT-HOLE LOGGING AT THE C-152 DIVERSION BOX

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Small Diameter Slant-Hole Logging at the C-152 Diversion Box

by

Russ Randall, PhD and Randall Price

to

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Richland, Washington 99354

November 2006

Pacific Northwest Geophysics
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Kennewick, Washington 99338

Three Rivers Scientific
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West Richland, Washington 99353

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Small Diameter Slant-Hole Logging at the C-152 Diversion Box

1 Introduction

Pacific Northwest Geophysics (PNG) and Three Rivers Scientific provided small diameter logging in support of slant-hole probing and sampling activities at the C-152 Diversion Box (C Tank Farm) to investigate the extent of subsurface contamination. Logging surveys were conducted with two detectors: NaI (scintillation) gross gamma and neutron moisture. This report presents the results of these surveys for the 6 slant holes installed at the investigation site. A 3-D view of the probe-hole locations (copied from the gyro survey report) shows the slant hole drive angle, probe direction, and sample locations (see Figure 1).

The NaI gross gamma and neutron moisture logging sondes were calibrated in their respective borehole calibration models and the calibrations were (1) either performed at, or (2) extrapolated to, the probe hole conditions present at the investigation site (see section 2).

Log surveys were recorded at various times during the drilling, to track the predicted sub-surface soil conditions, so that the target sample locations (depths) would be collected for laboratory analysis. All log intervals and repeats are presented on the same plot, they confirm the precision (repeatability) of the logging system.

The survey results for each probe hole are presented graphically as depth versus detector response (in Appendix A). The plots are in numeric order of the probe holes (C5104 – C5109). The appendix also includes a table that summarizes for each probe hole: survey dates, detector type, and survey depth range.

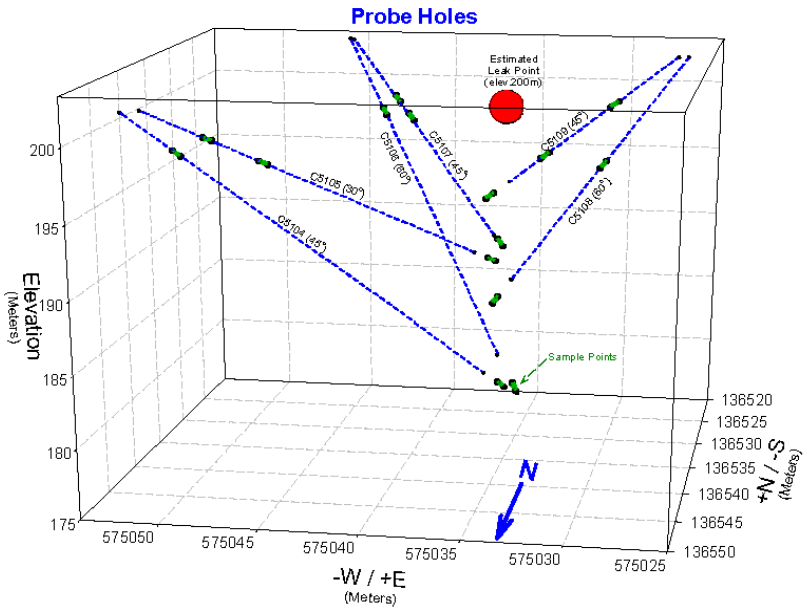

Figure 1 C-152 Slant Hole Locations, Drive Angle, and Direction

2 Geophysical Logging System

The small-diameter logging unit deployed to the investigation site, is a portable unit (i.e. mounted on a wagon). The system is powered by the on-site generator (120v AC). The system contains a laptop computer that monitors encoder depth positions, controls the winch motor, and records detector responses.

The NaI gamma and neutron moisture detectors contain their own signal processing/counting hardware and each respond directly to the laptop computer communication commands, this configuration enhances detector stability, simplifies system setup, and improves calibration by minimizing the travel distance of detector signals before conversion to digital mode.

2.1 Gross Gamma Calibration and Surveys

The gross gamma scintillation detector is a sodium-iodide (NaI) crystal. The NaI crystal (1-in. long) is hydroscopic and is enclosed in a hermetically sealed can (1-in. diameter) to maintain its integrity. Other components of the gamma detector are the high-voltage supply, photo-multiplier tube, pre-amp, and multi-channel analyzer. The settings of the detector components are fixed (i.e. set up during assembly, prior to calibration) and are not adjustable by the field-logging engineer. The detector gain and lower threshold are set to record gamma ray activity of energies between 100 and 3000 keV. By comparison, the highest gamma ray encountered during logging is from a naturally occurring radionuclide (thorium-232) and it occurs at 2614 keV. Coleman lantern mantles containing thorium-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 NaI detector is calibrated in Gross gamma borehole calibration models located at the U.S.-DOE Hanford site near Richland, Washington. Calibration was performed in the two most appropriate (lowest concentration) gross gamma calibration zones (SBA and SBU). The detector was covered with a 4-ft long section of the probe/drill tubing (0.37-inch thick). The calibration data are summarized in Table 1. The calibration units are pCi/g of equivalent Radium-226 (eRa-226). See Figure 2 for the calibration certificate.

Table 1 Gross Gamma Calibration Data

Calibration Model	Concentration eRa-226 (pCi/g)	Gross Gamma Response[1] (cps)	Dead-Time Corrected Gross Gamma Count-Rate[2] (cps)
SBA	61.2	476.0	477.8
SBU	186	1396.6	1412.7
1-Count rates are mean of 10 sample measurements at 100-sec each. 2-NaI Detector system dead time is 8.15 microsec			

The NaI gamma surveys were acquired at 3 ft/minute. A spectrum of 256 channels was collected each 0.5 feet from the bottom of the probe-hole to the surface. The spectra were recorded in Ortec PHA "-.chn" format with one spectra per file. Detector count rates were dead-time corrected and the gamma survey data was processed as gross gamma response to determine the concentration of equivalent Radium-226 (eRa-226) in pCi/g.

The dead time correction is a nonparalyzeable relationship (Knoll, 1979) and 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 ε is the dead time factor of 8.25μs (Randall & Price, 2006).

Certificate of Calibration
SDGR-4N4-NaI1
July 7, 2005

Data were taken at the Hanford KUT models on July 7, 2005. SDGR-4N4-NaI1 is the designated Scintillator tool. Two models were used for the gross gamma calibration (SBU and SBA). Ten spectra were recorded for each model in order to perform statistical analysis. The observed deviations were seen to be near the theoretically predicted variation, for this analysis, refer to the compressed files: Gross.xls.

This calibration is required for the Direct Push logging, and it is funded by subcontract 013661.

The instrument was covered with 0.37 inch wall-thickness probe-tubing.

The coefficient analysis is determined by the algorithm described in WHC-SD-EN-TI-293, Rev. 0. 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 Eq. ^{226}Ra 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:

$$a = .131 \quad Eq.^{226}Ra\ pCi/g\ /\ (c/s)$$
$$b \equiv 0$$

Digital files condensed as Cal_SD-GR-02_2005-v0.zip. This compressed file contains:

- Calibration raw data
- MathCad data analysis files
- Spreadsheet data formatting

The undersigned certifies that the data archived in the file "Cal_SD-GR-02_2005-v0.zip" were collected and evaluated in accordance with WHC-SD-EN-TI-293, *Procedures for Calibrating Scintillation Gamma-Ray Well Logging Tools Using Hanford Formation Models* and that the above stated calibration coefficients are correct and applicable for the tool SDGR-4N4-NaI1 effective July 7, 2005.

Signature: Russel Randall PhD Date: July 8, 2005

Company: Three Rivers Scientific

Figure 2 Gross Gamma Calibration Certificate

Also, the NaI gross gamma detector was calibrated for eCs-137 (pCi/g) in addition to the primary calibration for eRa-226 (Randall & Price, 2005). The calibration for eCs-137 was to report elevated gamma count-rate zones in units commonly encountered in Hanford soils. Calibration for eCs-137 was performed in Hanford well 299-W10-72 (a standard identified by Stoller Corporations' logging group). The Cs-137 in the well is stable, except for the 30 year half life decay of the radio-isotope. Also, distribution of Cs-137 ranges from less than 1 pCi/g to 40,000 pCi/g along the depth of the well. The concentrations of Cs-137were established by two HPGe detectors (the 70% tool and the High Rate tool). The conversion factor from detector count rate (cps) to eCs-137 is 0.373 (pCi/g per cps) for casing thickness of 0.40-in.

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 neutron source is an integral component of a neutron-moisture detector and calibration factors are tied-to each neutron source. The neutron source is identified by the tool serial number (H38068291).

The integrity of the sealed neutron source was always maintained when it was used in calibration activities and in probe hole logging activities. Source integrity was achieved by inserting the PNG owned neutron detector module into the housing containing the sealed neutron source, manufactured by Campbell Pacific Nuclear.

Calibration was performed in six borehole calibration models (Meisner & Randall, 1995). Three models have 6-in. hole-size and three models have 8-in hole-size. The moisture content of each model in a set of three borehole models is different (5, 12, or 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 (Source: H38068291)

Moisture Content Percent – volume fraction	6-inch Models* (cps)	8-inch Models* (cps)
5% vf	96.2	75.7
12% vf	142.7	106.5
20% vf	179.0	129.7
*Count rates are mean of 10 sample measurements at 60-sec each.		

The probe holes size for this project was 2.51-inch. Therefore, the moisture calibration was extrapolated to the correct hole-size. The moisture calibration certificate for 2.51-in hole-size is shown in Figure 4.

The probe hole survey was collected at 1.5 ft/minute. Processing of the moisture survey data requires that the borehole survey data be normalized to the thickness of the steel casing present in the calibration models (0.325-in). Given that the probe hole casing thickness is 0.37-in, a correction factor of 1.055 is required to increase (normalize) the observed detector count rate to the conditions of the calibration model (Meisner, etal. 1996).

Certificate of Calibration for
Instrument SD-Moist291-2

June 6, 2005

On June 6, 2005 data were taken in the Moisture models for the SD-Moist291-2 neutron-neutron moisture tool. The neutron source from DOE moisture tool # H38068291 was used with the passive neutron detector probe from PNG. This calibration is required for the Direct Push logging, and it is funded by subcontract 013661.

Six models were used for moisture calibration, three for 6-in. casing and three for 8-in. casing. Repeated spectra were recorded for each model in order to perform statistical analysis. The observed statistical variation agreed with the theoretically predicted variation (refer to the file Stats-moist.xls for this analysis).

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306, *Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration*, Rev. 0. The regression function used is a power law form and defined by:

$$V = a \cdot CR^{\alpha}$$

Where V is the formation moisture content in volume fraction water in vf units. One vf unit is 1% by volume water. The coefficients a and α are fit coefficients, and CR is the deadtime corrected observed total count rate, (c/s).

6" casing	**8" casing**
a = .0002069	**a = .00008067**
α = 2.210	**α = 2.550**

The undersigned certifies that the data archived in data file "SD-Moist291_2005.zip" were collected and evaluated in accordance with WHC-SD-EN-TI-306 and that the above stated calibration coefficients are correct and applicable for tool SD-Moist291-2, effective June 6, 2005.

Signature: Date:

Russel Randall, PhD July 1, 2005
Three Rivers Scientific

Figure 3 Moisture Calibration Certificate, Hole Size: 6-in. and 8-in.

Moisture Calibration Extrapolation to 2.51 Inch Borehole
Instrument SD-Moist291-2

June 6, 2005

Moisture calibration was performed in the Hanford physical models. These standards have 6-in. and 8-in. inside diameter (ID) casings. The Tank Farm Direct Push borehole is cased with a 2.51-in. outside diameter (OD) iron casing. The calibration for the moisture response is a function of borehole diameter.

The coefficient generation is determined by the algorithm described in WHC-SD-EN-TI-306, *Radionuclide Logging System In Situ Vadose Zone Moisture Measurement Calibration*, Rev. 0. The regression function used is a power law form and defined by:

$$V = a \cdot CR^{\alpha}$$

Where V is the formation moisture content in volume fraction water in vf units. One vf unit is 1% by volume water. The coefficients a and α are fit coefficients, and CR is the deadtime corrected observed total count rate, (c/s). A linear extrapolation was applied to determine the 2.51 inch borehole diameter.

2.51" borehole
a = .000343
α = 1.951

The undersigned certifies that the analysis files are archived in the file "SD-Moist291_2005.zip" which was evaluated in accordance with DTS procedures and that the above stated calibration coefficients are correct and applicable for tool SD-Moist291-2, effective June 6, 2005.

Signature: Date:

Russel Randall, PhD July 12, 2005
Three Rivers Scientific

Figure 4 Moisture Calibration Certificate, Hole Size 2.51-in.

3 Conclusion

Scintillation Gross Gamma and Neutron Moisture survey logs were collected in 6 slanted probe holes installed in the investigation site at the C-152 Diversion Box. All probe holes were pushed to their target depth. The survey results are presented in Appendix A and a 3D view of the probe-hole locations showing the drive angle and direction is shown in Figure 1.

The probe holes are paired as a consequence of their initial starting location, i.e. (C5104, C5105), (C5106, C5107), and (C5108, C5109). These paired holes may be examined together by overlaying the plots. The gamma activities in all probe holes indicate low activity, (count rate levels are at or near the natural background activity), except for C5109 which encountered one zone with elevated count rate. However, the moisture surveys show significant variations with depth. The paired probe holes have similar distribution profiles. Except for the pair (C5108, C5109) which show the most difference between the depth range (elevation): 194 to 199 meters.

The moisture content is higher near the surface and significantly dryer 6-meters below ground surface in all probe holes. The dry zones are where the probe holes extend below the protective barrier that was placed over the C-152 Diversion Box.

The moisture content changed between logging runs on three probe holes (C5106 at 198.7 meters), (C5108 at 196.67 meters), and (C5109 at 197 meters). In each of these three occasions, the moisture change is between log runs where a soil sample was collected. During sampling, the drive tubing was retrieved to extract the sample. The moisture change probably occurred when then the drive-tubing was re-inserted, which permitted materials in the subsurface to be moved around. The consistency of moisture content between log runs and soil sampling events may support discussions in support of the probe hole driving technique.

The survey results show that the soil samples were collected at subsurface locations where moisture transition content was transitioning from high to low.

4 References

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Appendix A: Gamma Survey Results

Gamma and Moisture Survey Plots follow for the 6 slant probe holes installed around the C-152 Diversion Box. The plots have two depth scales (y axis). (1) The vertical depth (elevation in meters) is presented on the left side of the plot. All plots have the same elevation depth range. (2) The measured distance along the slant hole (in feet) is presented on the right side of the plot.

Table 3 presents inclination and elevation information for each probe hole. Zero depth reference is at ground surface. Soil sample locations are shown on the plots as a wide green line connecting two black dots, one at the top and one at the bottom of the sample depths. Each probe hole was sampled at its maximum depth.

The neutron moisture survey results are presented in %-volume-fraction units, the plot scale is 0-25 %vf (green line) The plot scale for the gross gamma results are shifted to improve interpretation of the survey data and minimize overlap of the plotted curves, in zones with low moisture content (same for all plots). The gross gamma survey data were dead-time corrected and the results are converted to two calibration units

(1) Eq Ra-226 for natural radionuclides (concentrations less than 5 pCi/g), plot scale 1-26 pCi/g (blue line) and
(2) Eq Cs-137 for contamination zones (concentrations greater than 4 pCi/g), plot scale 0-100 pCi/g (red line). The scale is linear and only probe hole C5109 encountered gamma emitting contamination (greater than 5 pCi/g of eRa-226). No spectral gamma measurements were acquired.

Table 3 Slant Hole Inclination, Elevation at Ground Level, and True Vertical Depth

Hole	Inclination Angle (degrees) (90=vertical) (0=horizontal)	Sine (angle) Factor: TVD / SlantHole	Elevation at Ground-Level (m)	Sample Max_Depth (SlantHole ft)	Sample Vertical Depth (ft)	Sample Elevation Max Depth (m)
C5104	44	0.6947	201.76	110.5	76.76	178.36
C5105	31.5	0.5225	201.76	85	44.41	188.22
C5106	58	0.848	203.08	92	78.02	179.30
C5107	45.4	0.712	203.08	61	43.43	189.84
C5108	60.5	0.8704	203.15	68	59.18	185.11
C5109	45.4	0.712	203.19	47	33.47	192.99

Table 4 Probe Hole Survey Summary

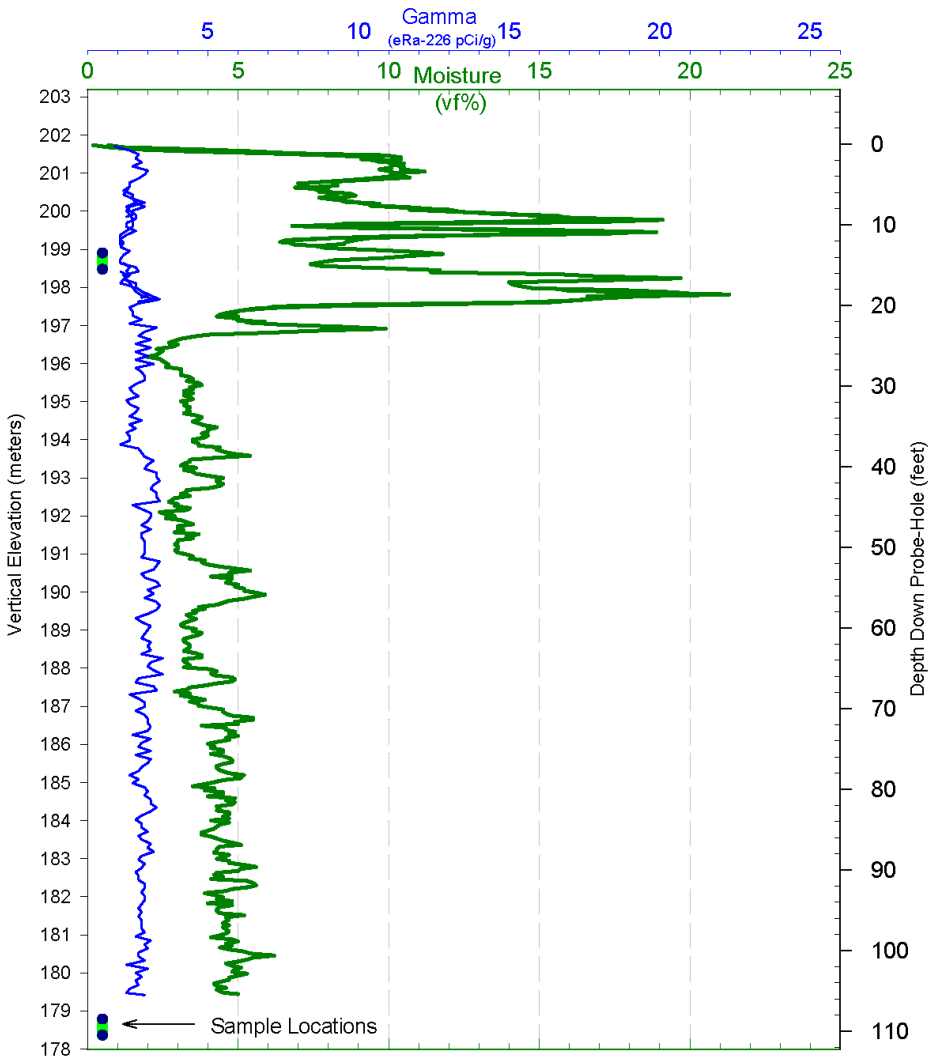
Probe Hole	Log Date	Gross Gamma	Moisture	Survey Bottom Depth	Survey Top Depth
C5104	5/2/2006		Moist	12.6	0.0
C5104	5/2/2006	Gamma		12.5	0.0
C5104	5/3/2006	Gamma		105.5	7.0
C5104	5/4/2006		Moist	105.4	0.0
C5105	5/23/2006	Gamma		12.0	0.0
C5105	5/26/2006	Gamma		25.3	8.0
C5105	5/30/2006	Gamma		79.0	19.0
C5105	6/1/2006		Moist	79.3	0.0
C5106	4/10/2006	Gamma		17.5	0.0
C5106	4/10/2006		Moist	17.8	0.0
C5106	4/12/2006		Moist	84.0	13.0
C5106	4/13/2006	Gamma		84.0	12.0
C5107	4/19/2006	Gamma		6.9	0.0
C5107	4/19/2006	Gamma		15.7	5.0
C5107	4/20/2006	Gamma		21.5	14.0
C5107	4/25/2006	Gamma		55.4	16.5
C5107	4/25/2006		Moist	55.5	0.0
C5108	3/21/2006		Moist	30.0	2.0
C5108	3/22/2006	Gamma		26.5	0.0
C5108	3/22/2006		Moist	26.4	0.5
C5108	3/27/2006	Gamma		63.5	16.0
C5108	3/28/2006		Moist	63.4	19.5
C5109	3/30/2006	Gamma		13.1	0.0
C5109	4/3/2006	Gamma		30.0	5.0
C5109	4/3/2006		Moist	30.0	0.0
C5109	4/5/2006	Gamma		41.7	25.0
C5109	4/5/2006		Moist	41.8	33.3

Small Diameter - Gamma & Moisture Survey

Energy Solutions & Pacific Northwest Geophysics

Project: Tank Farm C-152
Probehole: C5104 (45-degrees)

Log Date: May 2006
Depth Ref: Ground Level

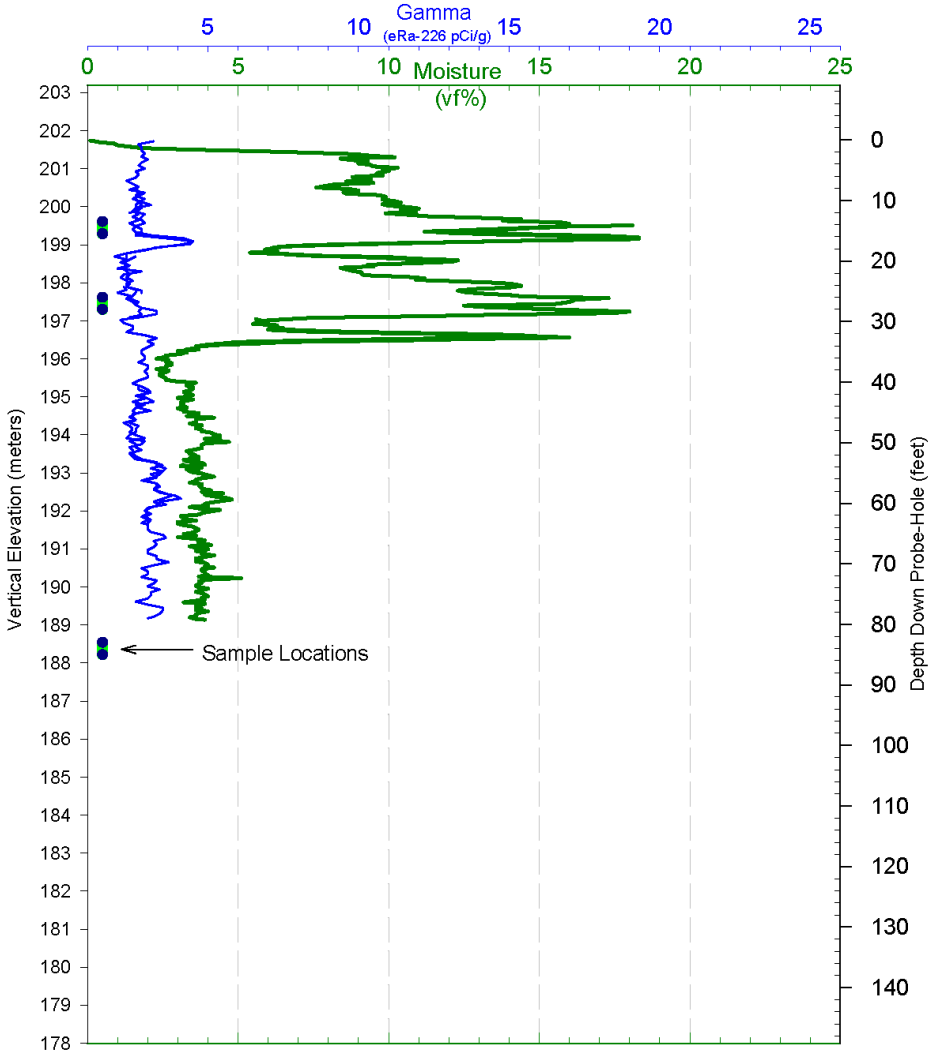


Small Diameter - Gamma & Moisture Survey

Energy Solutions & Pacific Northwest Geophysics

Project: Tank Farm C-152
Probehole: C5105 (30-degrees)

Log Date: June 2006
Depth Ref: Ground Level

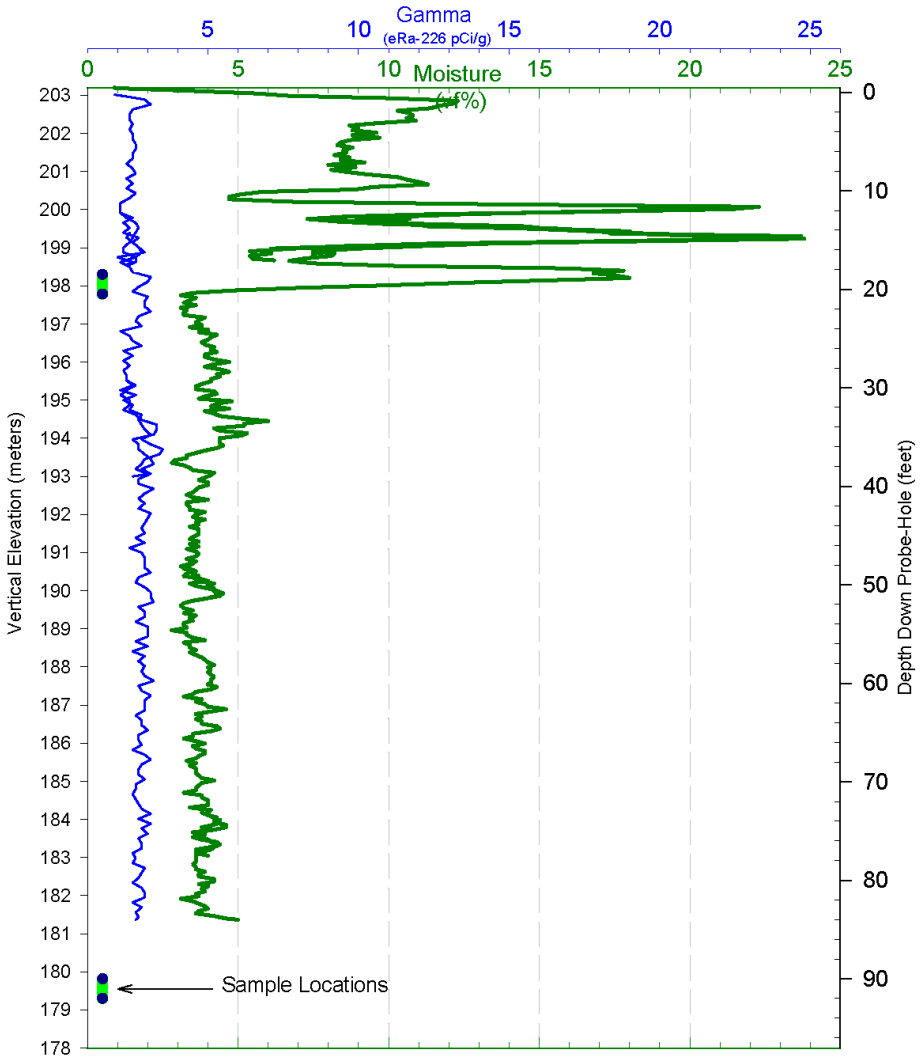


Small Diameter - Gamma & Moisture Survey

Energy Solutions & Pacific Northwest Geophysics

Project: Tank Farm C-152
Probehole: C5106 (60-degrees)

Log Date: April 2006
Depth Ref: Ground Level

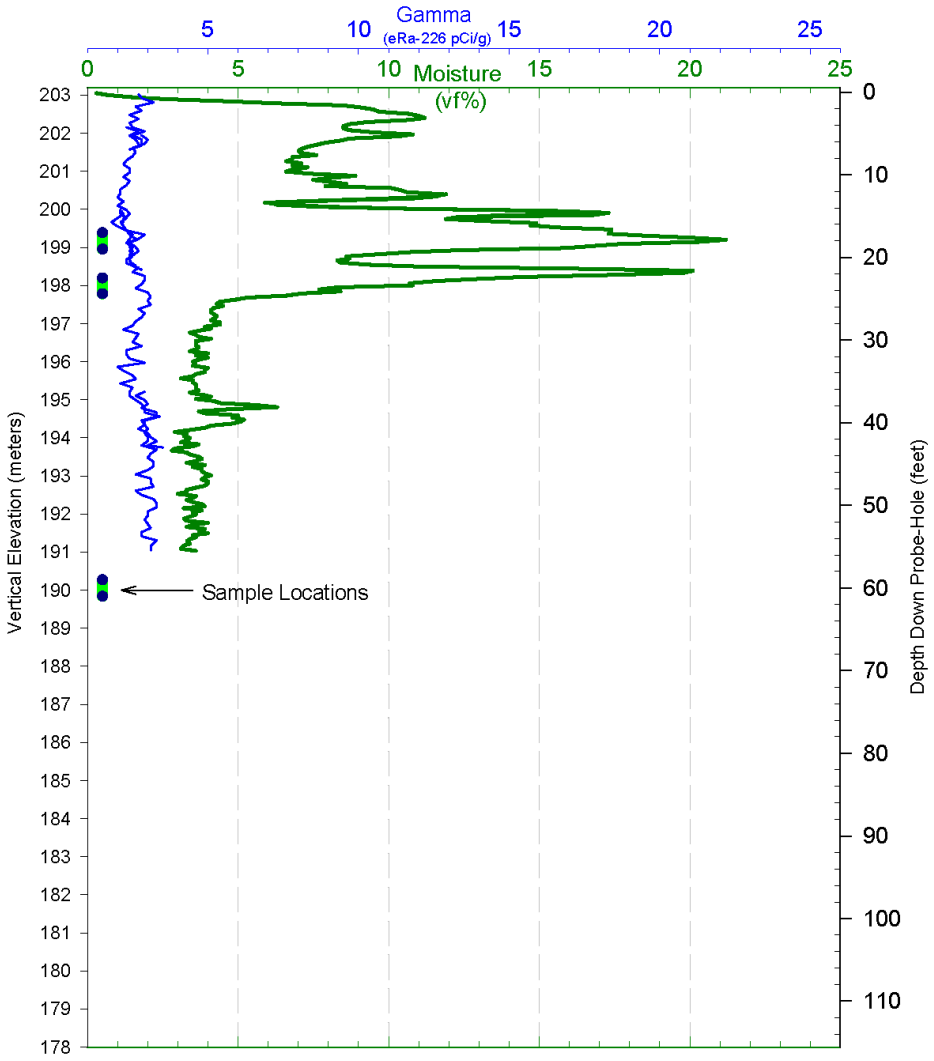


Small Diameter - Gamma & Moisture Survey

Energy Solutions & Pacific Northwest Geophysics

Project: Tank Farm C-152
Probehole: C5107 (45-degrees)

Log Date: April 2006
Depth Ref: Ground Level

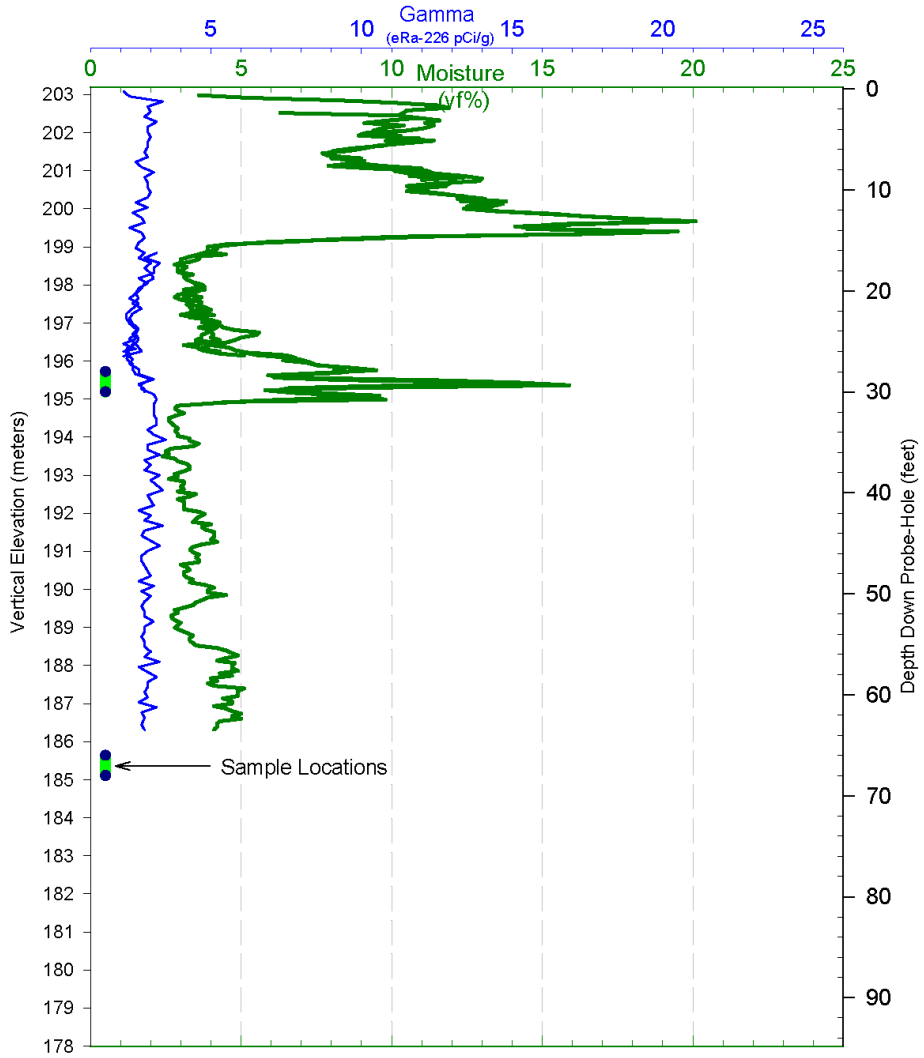


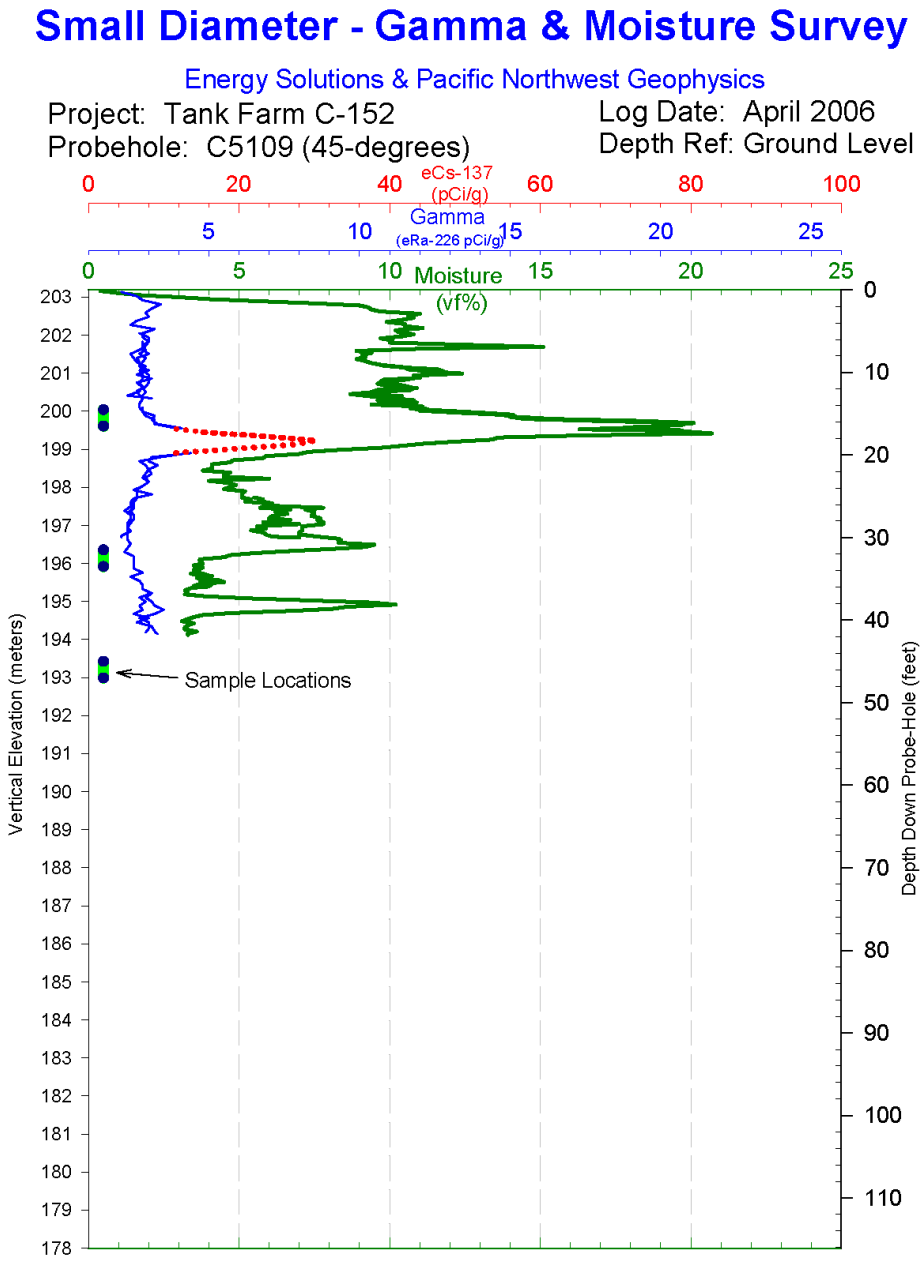
Small Diameter - Gamma & Moisture Survey

Energy Solutions & Pacific Northwest Geophysics

Project: Tank Farm C-152
Probehole: C5108 (60-degrees)

Log Date: March 2006
Depth Ref: Ground Level




Small Diameter - Gamma & Moisture Survey
Energy Solutions & Pacific Northwest Geophysics
Project: Tank Farm C-152
Probehole: C5109 (45-degrees)
Log Date: April 2006
Depth Ref: Ground Level
eCs-137 (pCi/g)
Gamma (eRa-226 pCi/g)
Moisture (vf%)
Sample Locations
Vertical Elevation (meters)
Depth Down Probe-Hole (feet)

C-152 Diversion Box Slant Hole Gyro Survey Results

Gyroscope Surveys for Tank Farms Slant Holes

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1 Slant Probe-Hole Coordinates (XYZ) and 3-D View

Gyroscopic borehole surveys were acquired at periodic intervals as the probe-holes were being installed around the C-152 Diversion Box. The gyro surveys were acquired at stationary measure points along the probe-hole and the survey results are presented here. Additionally, the soil sample locations are also incorporated into the results table and graphical presentations.

The Gyroscopic survey detector tracks the path of a probe-hole into the subsurface from its starting location [i.e. beginning XYZ coordinate, starting inclination (Dip), and Direction (Azimuth)]. The initial starting location is supplied as input to the gyro survey processing program. Description of the gyro survey equipment is discussed later. The initial starting location information is determined as follows:

- XYZ coordinates: Global Positioning System (GPS), Washington State Plane coordinate system. Device: Tremble GPS, Model TSCe, precision XYZ coordinate = +/-2cm.
- Inclination: Dip of steel probe tubing (actual angle of probe tubing). Manual reading Inclinometer with scribe marks at 1-degree increment. Bubble level precision is established with microscope type sight glass.
- Azimuth (true north compass bearing): Direction of guide tube that holds the steel probe-tubing. The guide tube and support base for the drive hammer foot are attached to a heavy steel plate which is secured in place with six push rods. The location of the steel base plate and orientation of the guide tube is determined by the GPS. The azimuth bearing of the guide tube is computed from two GPS survey points, one is taken at the high-end of the guide tube, and the other is taken at the low-end of the guide tube.

C-152 Diversion Box Slant Hole Gyro Survey Results

The initial starting location information for each slant probe-hole is shown in the following table.

Hole ID	Depth (m)	Northing (m)	Easting (m)	Elevation (m)	Dip (deg)	Azimuth Bearing
C5104	31.89	136546.85	575052.01	201.76	-44.0	221.65
C5105	24.24	136546.05	575051.19	201.75	-31.5	221.65
C5106	25.22	136522.31	575045.63	203.06	-58.0	312.0
C5107	17.7	136522.66	575045.23	203.08	-45.2	312.07
C5108	18.62	136528.25	575026.31	203.15	-60.7	79.8
C5109	12.54	136528.48	575026.81	203.19	-45.25	79.0

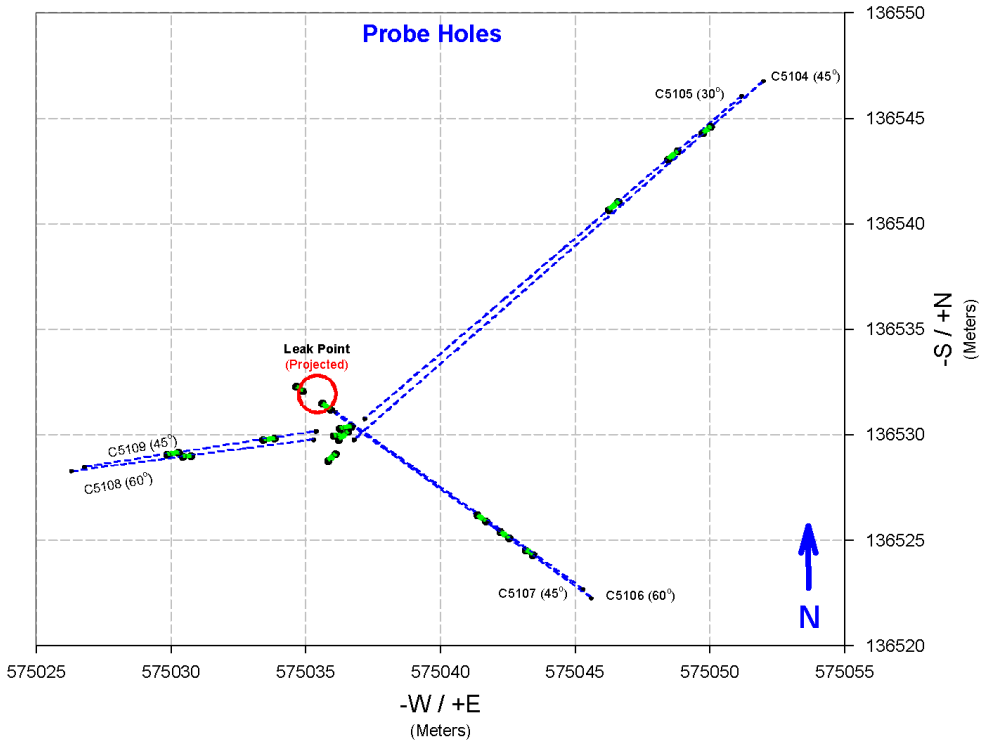
The gyro survey results for each slant probe-hole (top and base coordinates) and soil sample locations (coordinates) are shown in the following table.

Hole ID	Survey (ft)	N (m)	E (m)	Elev (m)
C5104	Top	136546.85	575052.01	201.76
45-deg	Base	136529.83	575036.75	179.74
Samples>	13.5	136544.64	575050.03	198.91
	15.5	136544.32	575049.74	198.48
	108.5	136529.12	575036.11	178.82
	110.5	136528.79	575035.82	178.39
C5105	Top	136546.05	575051.19	201.75
30-deg	Base	136530.84	575037.19	189.11
Samples>	13.5	136543.47	575048.81	199.60
	15.5	136543.08	575048.46	199.29
	26	136541.08	575046.61	197.62
	28	136540.69	575046.26	197.30
	83	136530.17	575036.57	188.55
	85	136529.79	575036.22	188.23
C5106	Top	136522.31	575045.63	203.06
60-deg	Base	136531.30	575035.75	181.66
Samples>	18.5	136524.32	575043.42	198.28
	20.5	136524.54	575043.18	197.76
	90	136532.09	575034.89	179.79
	92	136532.30	575034.65	179.27
C5107	Top	136522.66	575045.23	203.08
45-deg	Base	136531.08	575036.06	190.47
Samples>	17	136525.12	575042.55	199.39
	19	136525.41	575042.23	198.96
	22.5	136525.92	575041.68	198.20
	24.5	136526.21	575041.37	197.77
	59	136531.21	575035.92	190.28
	61	136531.49	575035.61	189.85
C5108	Top	136528.25	575026.31	203.15
60-deg	Base	136529.84	575035.31	186.91
Samples>	28	136528.98	575030.43	195.71
	30	136529.03	575030.73	195.18
	66	136529.97	575036.03	185.62
	68	136530.02	575036.32	185.09
C5109	Top	136528.48	575026.81	203.19
45-deg	Base	136530.17	575035.44	194.28
Samples>	14.5	136529.08	575029.86	200.04
	16.5	136529.16	575030.28	199.61
	31.5	136529.78	575033.43	196.36

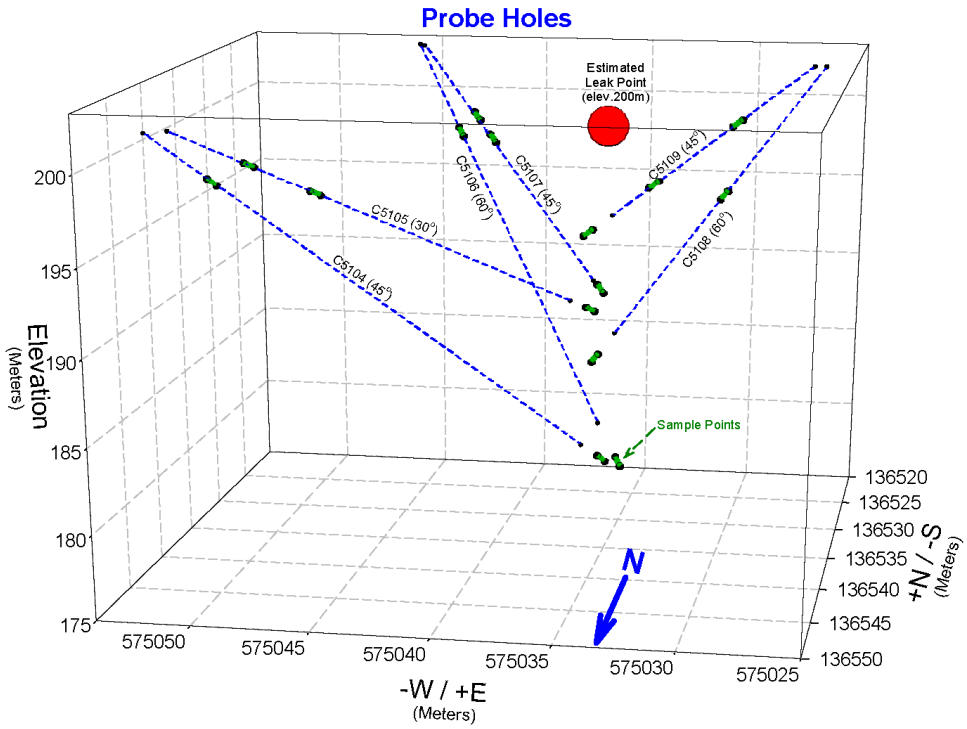
C-152 Diversion Box Slant Hole Gyro Survey Results

	33.5	136529.86	575033.85	195.92
	45	136530.33	575036.27	193.43
	47	136530.41	575036.69	192.99

The plan and 3D perspective views follow for the slant probe-holes tubing path, soil sample locations, and estimated leak point. The "Leak Point" coordinates (i.e. N136531.98 E575035.43 Elevation:200-meters) were interpreted by CHG from Hanford Drawing H-2-35450.



C-152 Diversion Box Slant Hole Gyro Survey Results



2 Gyro Survey Equipment Description

The IFG gyroscope logging sonde is a high precision instrument with the following specifications and operational guidelines.

- Warm-up time of logging sonde is 30-minutes. The warm-up time is required for the gyroscope (rotating mass) to come up to operating speed (15,000 rpm) and allows the equipment to reach operating temperature. If the equipment is not properly warmed-up the gyro drift will be excessive during the survey. During the warm-up period the logging sonde should be vertical and stationary.
- Operating temperature range is 0 to 70-deg C
- Sonde dimensions: Diameter 40mm (1.57in), Length 1.7m (5.58ft)
- Inclinometer: 2-axis tilt meter (+/- 80-degrees from vertical) precision (0.01 degrees)
- Sonde communication to up-hole electronics is serial (RS-232) at 4800 BAUD.
- Depth of sonde in probe-hole is determined from logging cable encoder. The measurement is performed by a quadrature encoder (optical).

- During operation, sensor responses are recorded at 2 samples per second, continuously from the beginning of the survey to the end of the survey. Gyro sensor readings from stationary measurements are used for results processing.

3 Results Plots

The gyro surveys were acquired at stationary measurement locations (winch halted and no movement of the logging sonde for 1-minute). The stationary measurements were acquired while the sonde was going into the probe hole (In-Run) and coming out of the probe hole (Out-Run). Some gyro surveys were acquired during installation of the probe-holes (i.e. probe hole had not achieved its maximum penetration depth at the time of the survey). The survey date is included in the results table.

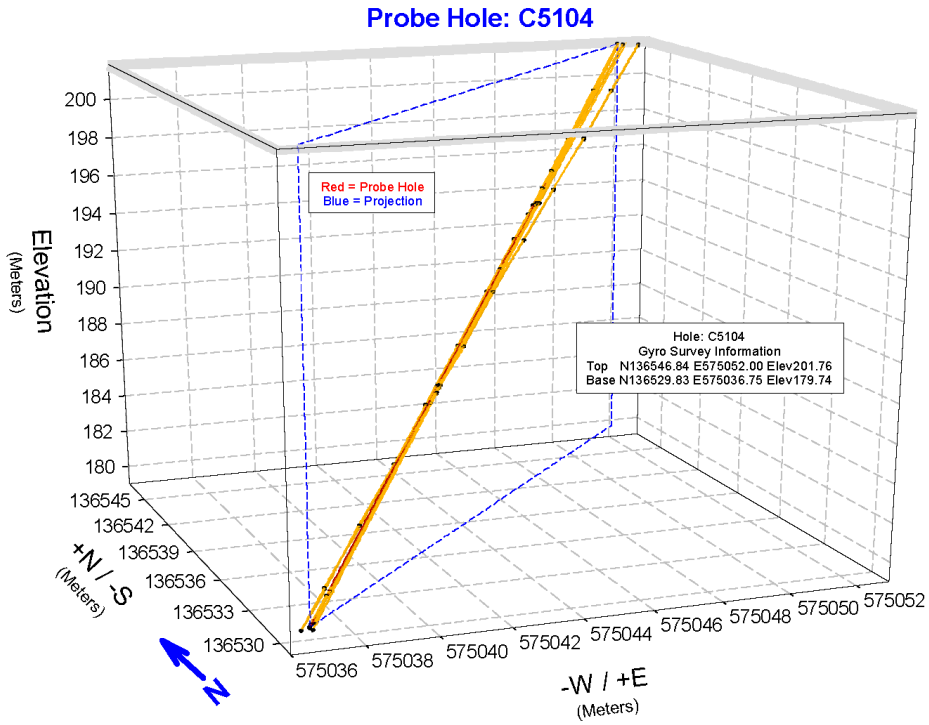
Generally, multiple surveys were acquired in each probe hole. The results for all gyro surveys are presented in the following plots (3D-view) and tables (stationary survey depths and XYZ coordinates). The primary gyro survey is presented at the top of each table.

Both the In-Run and Out-Run survey results are presented. The computed final location of the probe hole is established from the Gyro Survey data. The agreement (precision) between the multiple surveys are good.

The primary gyro survey is displayed as a **RED line** in the 3D presentation plot. The other surveys are shown as an Orange line. The stationary survey points are shown as a **Black Dot** along the solid survey line. The Blue Dash-line is a projection (1) along the surface, (2) vertically down from the start location of the probe hole, (3) vertically up from the computed final location of the probe hole, and (4) along a horizontal line at the end of the probe (maximum depth) to the surface start location. The surface is represented in the plot as a **Wide Gray line**.

C-152 Diversion Box Slant Hole Gyro Survey Results

3.1 Probe Hole C5104



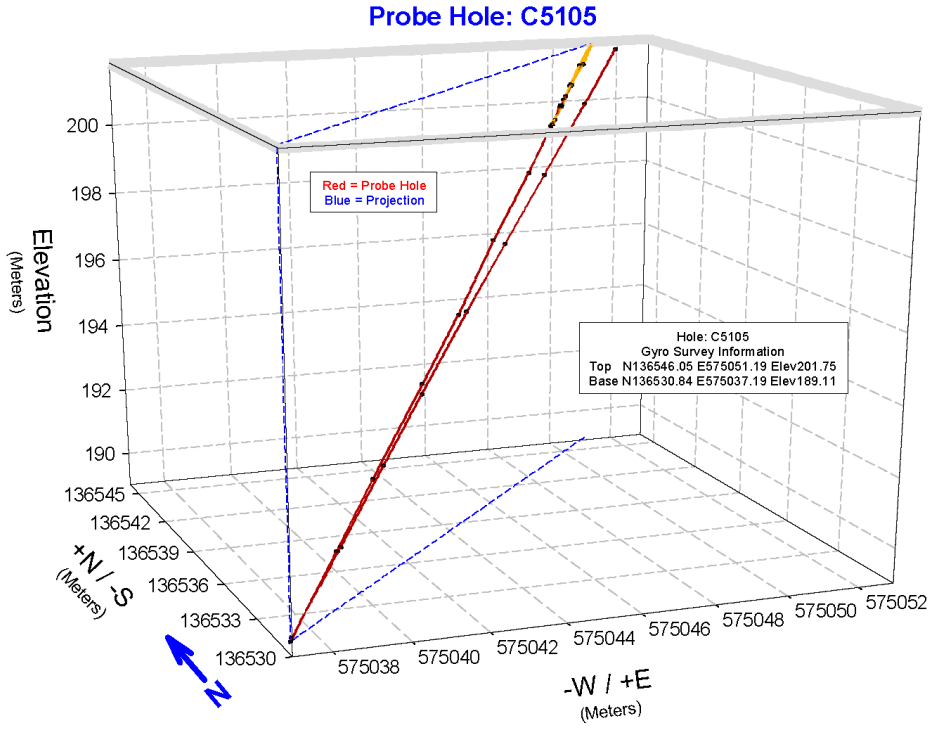
C5104K		5/17/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.84	575052.00	201.76	-44.00	221.65
3.036	136545.22	575050.56	199.65	-44.04	221.72
6.052	136543.59	575049.13	197.55	-44.07	221.89
9.032	136542.00	575047.69	195.48	-44.11	222.02
11.958	136540.45	575046.25	193.44	-44.13	222.18
14.979	136538.84	575044.81	191.34	-44.15	222.35
17.964	136537.27	575043.38	189.26	-44.16	222.51
21.027	136535.64	575041.88	187.13	-44.18	222.68
24.036	136534.06	575040.44	185.03	-44.18	222.84
26.995	136532.50	575038.94	182.97	-44.17	223.01
29.999	136530.94	575037.50	180.87	-44.16	223.17
31.882	136529.95	575036.56	179.56	-44.15	223.32
29.930	136530.97	575037.50	180.92	-44.15	223.48
27.042	136532.47	575038.94	182.93	-44.16	223.64
24.020	136534.03	575040.44	185.04	-44.16	223.80
20.935	136535.63	575042.00	187.19	-44.17	223.96
17.962	136537.16	575043.50	189.26	-44.18	224.10
14.995	136538.69	575044.94	191.33	-44.18	224.25
11.987	136540.23	575046.44	193.42	-44.19	224.41
9.034	136541.75	575047.94	195.48	-44.19	224.56
5.982	136543.30	575049.50	197.61	-44.18	224.68
2.967	136544.83	575051.00	199.71	-44.17	224.81
0.003	136546.34	575052.50	201.78	-44.16	224.94
C5104H		5/13/2006			

C-152 Diversion Box Slant Hole Gyro Survey Results

Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.84	575052.00	201.76	-44.00	221.65
10.028	136541.45	575047.19	194.79	-44.00	221.76
20.031	136536.09	575042.38	187.84	-44.03	221.89
31.554	136529.94	575036.88	179.84	-44.01	222.04
19.994	136536.11	575042.44	187.87	-44.03	222.20
9.983	136541.42	575047.25	194.83	-44.05	222.34
0.022	136546.72	575052.13	201.76	-44.07	222.46
C5104E		5/13/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.84	575052.00	201.76	-44.00	221.65
10.081	136541.42	575047.19	194.76	-43.98	221.78
20.039	136536.09	575042.38	187.85	-43.94	221.91
31.726	136529.83	575036.75	179.74	-43.95	221.99
20.052	136536.08	575042.38	187.84	-43.92	222.11
13.713	136539.45	575045.44	192.23	-43.89	222.25
C5104B		5/12/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.84	575052.00	201.76	-44.00	221.65
10.558	136541.17	575046.94	194.43	-43.98	221.62
20.122	136536.02	575042.38	187.79	-44.01	221.64
31.823	136529.75	575036.81	179.65	-44.07	221.84
20.413	136535.84	575042.25	187.59	-44.15	221.92
9.918	136541.45	575047.31	194.90	-44.17	221.94
-0.099	136546.78	575052.06	201.89	-44.25	222.02
C5104A		5/12/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.84	575052.00	201.76	-44.00	221.65
7.994	136542.55	575048.19	196.21	-43.99	221.78
20.062	136536.08	575042.38	187.83	-43.99	221.91
30.087	136530.72	575037.56	180.86	-43.99	222.05
31.593	136529.92	575036.81	179.82	-43.99	222.20
30.303	136530.61	575037.44	180.71	-43.98	222.34
20.016	136536.06	575042.44	187.86	-43.98	222.49
9.884	136541.44	575047.38	194.89	-43.99	222.64
-0.096	136546.72	575052.25	201.82	-43.99	222.78

3.2 Probe Hole C5105

Only one gyro survey was acquired at the maximum probe-hole depth for C5105. This survey shows an ending hole location that is 0.75m (2.5ft) away from the starting location of the probe-hole (i.e. return error). The cause of this large error may be explained as follows: the gyro survey C5106C (6/1/2006) was acquired by an operator (R.K. Price) who was not familiar operating the equipment.

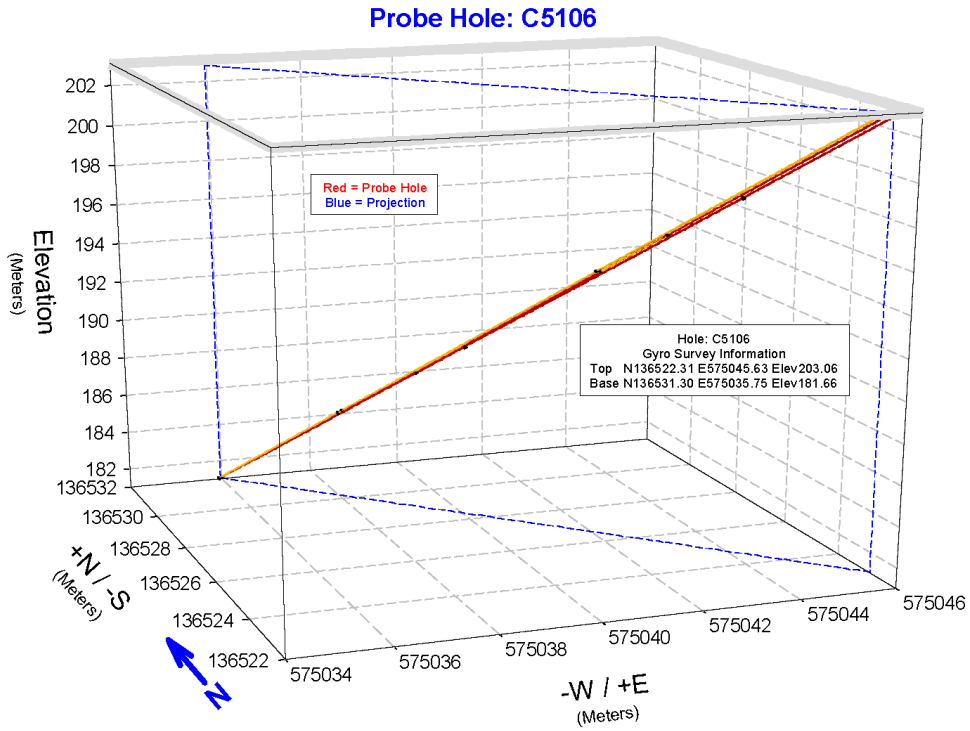


C5105C		6/1/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.05	575051.19	201.75	-31.50	221.65
2.525	136544.44	575049.75	200.43	-31.40	221.75
3.077	136544.09	575049.44	200.15	-31.37	222.00
6.082	136542.19	575047.75	198.58	-31.42	222.24
9.024	136540.33	575046.00	197.05	-31.48	222.46
12.160	136538.36	575044.25	195.41	-31.48	222.71
14.909	136536.64	575042.63	193.97	-31.48	222.97
18.523	136534.39	575040.50	192.09	-31.46	223.22
21.115	136532.78	575039.00	190.73	-31.41	223.46
24.237	136530.84	575037.19	189.11	-31.31	223.65
24.115	136530.92	575037.25	189.17	-31.21	223.85
20.972	136532.86	575039.13	190.80	-31.15	224.08
17.999	136534.69	575040.88	192.34	-31.13	224.34
15.259	136536.36	575042.50	193.75	-31.14	224.60
11.925	136538.39	575044.50	195.48	-31.16	224.86

C-152 Diversion Box Slant Hole Gyro Survey Results

9.077	136540.11	575046.25	196.95	-31.20	225.11
6.003	136541.97	575048.13	198.54	-31.09	225.24
2.735	136543.94	575050.13	200.23	-30.99	225.44
0.030	136545.56	575051.75	201.62	-30.88	225.57
C5105B		5/24/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.05	575051.19	201.75	-31.50	221.65
1.054	136545.38	575050.56	201.20	-31.48	221.64
2.040	136544.75	575050.00	200.69	-31.47	221.69
3.024	136544.13	575049.50	200.17	-31.44	221.73
3.941	136543.53	575048.94	199.69	-31.41	221.78
3.682	136543.70	575049.13	199.83	-31.33	221.90
3.870	136543.58	575049.00	199.73	-31.25	222.03
2.967	136544.16	575049.50	200.20	-31.16	222.18
1.957	136544.80	575050.06	200.72	-31.08	222.33
0.958	136545.42	575050.69	201.24	-31.00	222.45
0.031	136546.02	575051.19	201.71	-30.94	222.53
C5105A		5/24/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136546.05	575051.19	201.75	-31.50	221.65
1.078	136545.36	575050.56	201.19	-31.50	221.68
2.018	136544.77	575050.06	200.70	-31.49	221.76
2.706	136544.33	575049.63	200.34	-31.49	221.83
-0.063	136546.08	575051.25	201.78	-31.46	221.92

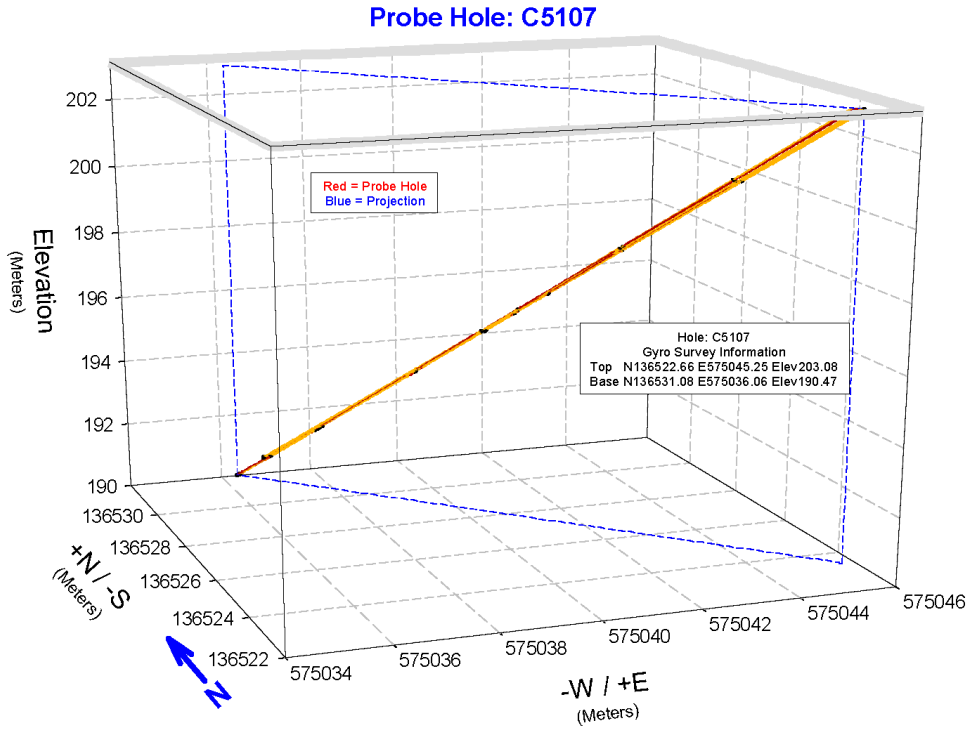
3.3 Probe Hole C5106



C5106A		4/14/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.31	575045.63	203.06	-58.14	312.02
7.492	136524.97	575042.69	196.70	-58.15	312.29
16.963	136528.34	575039.00	188.66	-58.06	312.49
25.212	136531.30	575035.75	181.66	-57.92	312.46
15.054	136527.64	575039.75	190.26	-57.83	312.67
5.005	136524.00	575043.69	198.77	-57.78	312.91
0.008	136522.19	575045.63	203.00	-57.91	312.81
C5106B		4/14/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.31	575045.63	203.06	-58.00	312.00
9.895	136525.83	575041.75	194.67	-57.98	312.21
20.043	136529.45	575037.75	186.06	-58.00	312.41
25.218	136531.30	575035.75	181.67	-58.09	312.29
19.881	136529.41	575037.81	186.21	-58.19	312.24
9.924	136525.86	575041.69	194.67	-58.16	312.44
-0.037	136522.33	575045.56	203.13	-58.22	312.27

C-152 Diversion Box Slant Hole Gyro Survey Results

3.4 Probe Hole C5107

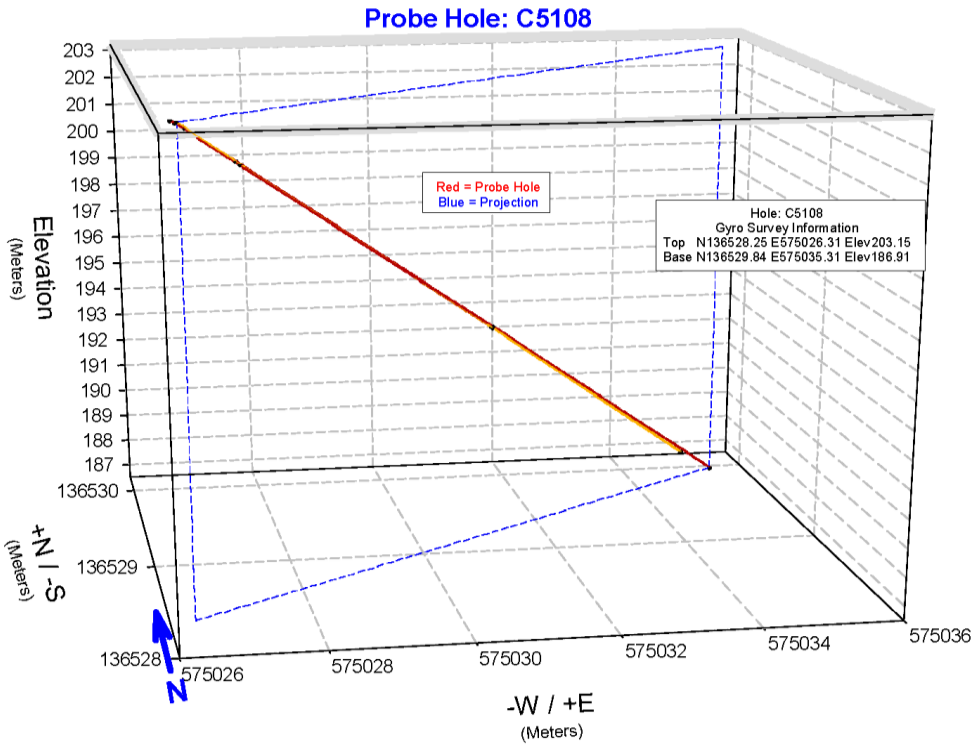


C5107Z		5/25/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.66	575045.25	203.08	-45.20	312.07
3.103	136524.13	575043.63	200.88	-45.24	312.32
6.063	136525.53	575042.06	198.77	-45.24	312.57
8.145	136526.52	575041.00	197.29	-45.29	312.60
9.104	136526.98	575040.50	196.61	-45.36	312.65
12.079	136528.39	575039.00	194.50	-45.41	312.68
15.152	136529.86	575037.38	192.31	-45.46	312.71
17.721	136531.08	575036.06	190.47	-45.54	312.79
14.948	136529.77	575037.50	192.45	-45.60	312.84
11.977	136528.34	575039.00	194.58	-45.66	312.87
8.949	136526.91	575040.56	196.74	-45.71	312.90
6.014	136525.52	575042.06	198.85	-45.78	313.10
3.064	136524.11	575043.56	200.96	-45.85	313.32
0.043	136522.66	575045.13	203.13	-45.90	313.56
C5107Y		5/25/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.66	575045.25	203.08	-45.20	312.07
3.046	136524.09	575043.69	200.92	-45.22	312.35
6.092	136525.55	575042.06	198.76	-45.21	312.60
9.096	136526.98	575040.50	196.62	-45.29	312.71
12.090	136528.41	575039.00	194.49	-45.37	312.83
15.105	136529.84	575037.44	192.35	-45.45	312.97
17.687	136531.08	575036.13	190.50	-45.53	313.16
15.002	136529.80	575037.50	192.42	-45.61	313.28

C-152 Diversion Box Slant Hole Gyro Survey Results

12.035	136528.38	575039.00	194.54	-45.69	313.37
8.974	136526.91	575040.56	196.73	-45.76	313.45
6.094	136525.53	575042.00	198.80	-45.83	313.64
3.057	136524.06	575043.50	200.98	-45.87	313.88
0.055	136522.61	575045.00	203.13	-45.88	314.13
C5107K		4/27/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.66	575045.25	203.08	-45.20	312.07
10.020	136527.39	575040.00	195.97	-45.18	312.23
16.725	136530.58	575036.50	191.21	-45.15	312.38
9.961	136527.36	575040.06	196.01	-45.16	312.54
-0.055	136522.58	575045.25	203.12	-45.26	312.60
C5107J		4/27/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.66	575045.25	203.08	-45.20	312.07
9.986	136527.38	575040.06	195.99	-45.19	312.26
16.717	136530.58	575036.50	191.22	-45.16	312.42
9.957	136527.36	575040.06	196.01	-45.17	312.58
-0.047	136522.59	575045.25	203.12	-45.28	312.62
C5107H		4/26/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.66	575045.25	203.08	-45.20	312.07
10.016	136527.39	575040.00	195.97	-45.27	312.35
16.612	136530.53	575036.63	191.28	-45.29	312.62
10.020	136527.39	575040.00	195.97	-45.41	312.81
-0.020	136522.59	575045.19	203.13	-45.51	312.88
C5107G		4/26/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136522.66	575045.25	203.08	-45.20	312.07
10.000	136527.39	575040.00	195.99	-45.11	312.19
16.703	136530.56	575036.50	191.25	-44.95	312.06
9.990	136527.38	575040.00	195.99	-44.93	312.22
-0.004	136522.61	575045.25	203.05	-44.99	312.47

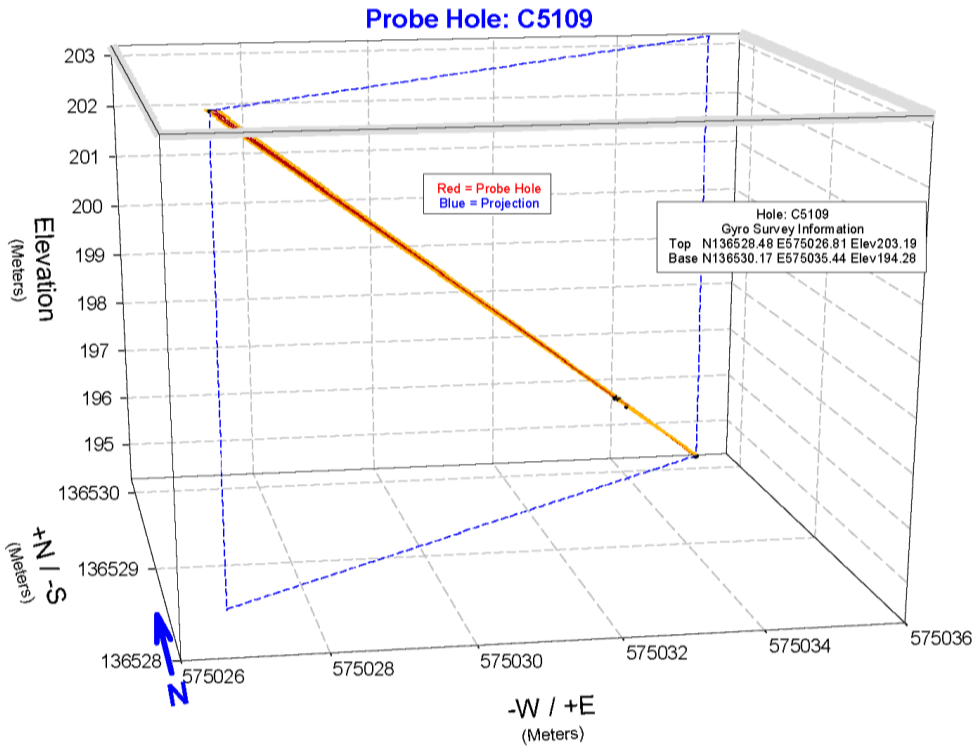
3.5 Probe Hole C5108



C5108C		3/29/2009			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136528.25	575026.31	203.15	-60.70	79.80
9.932	136529.11	575031.13	194.49	-60.64	80.00
18.628	136529.84	575035.31	186.91	-60.59	80.20
10.006	136529.13	575031.13	194.42	-60.52	80.38
0.086	136528.30	575026.31	203.05	-60.42	80.28
-0.018	136528.30	575026.25	203.14	-60.34	80.14
0.344	136528.33	575026.44	202.83	-60.25	80.00
C5108B		3/29/2009			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136528.25	575026.31	203.15	-60.70	79.80
10.000	136529.11	575031.13	194.43	-60.80	79.87
17.617	136529.77	575034.75	187.77	-60.90	79.97
C5108A					
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136528.25	575026.31	203.15	-60.70	79.80
1.710	136528.41	575027.13	201.66	-60.61	79.66
1.825	136528.41	575027.19	201.56	-60.60	79.44

C-152 Diversion Box Slant Hole Gyro Survey Results

3.6 Probe Hole C5109

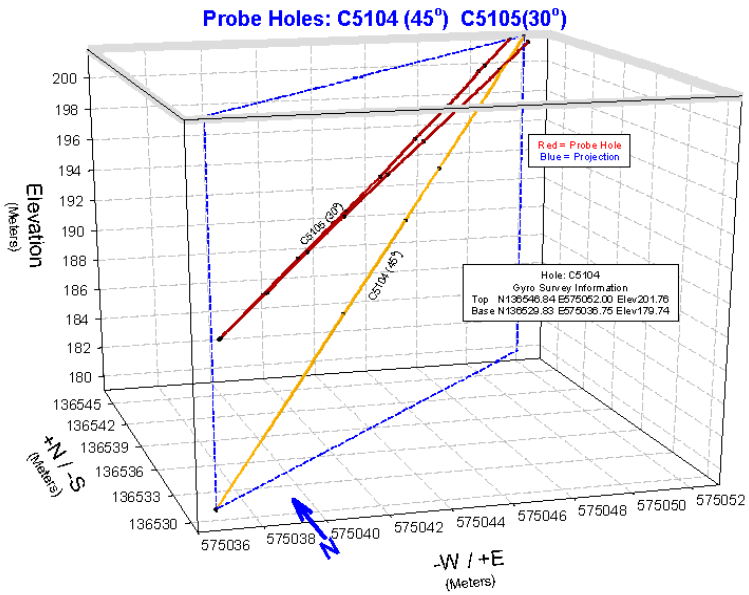


C5109F		4/6/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136528.48	575026.81	203.19	-45.25	79.00
9.924	136529.83	575033.69	196.14	-45.33	78.89
12.532	136530.17	575035.44	194.28	-45.44	78.88
9.988	136529.83	575033.69	196.10	-45.52	78.97
-0.033	136528.48	575026.81	203.25	-45.57	78.83
C5109E		4/6/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136528.48	575026.81	203.19	-45.25	79.00
10.027	136529.84	575033.75	196.07	-45.31	78.87
12.538	136530.17	575035.44	194.28	-45.41	78.83
9.928	136529.83	575033.69	196.14	-45.52	78.87
0.000	136528.47	575026.88	203.23	-45.56	78.73
C5109D		4/6/2006			
Depth	Northing	Easting	Elevation	Dip	Azimuth
0.000	136528.48	575026.81	203.19	-45.25	79.00
9.951	136529.83	575033.69	196.12	-45.34	78.91
12.528	136530.17	575035.44	194.29	-45.27	79.04
10.353	136529.88	575033.94	195.83	-45.23	79.19
-0.043	136528.50	575026.75	203.21	-45.24	79.03

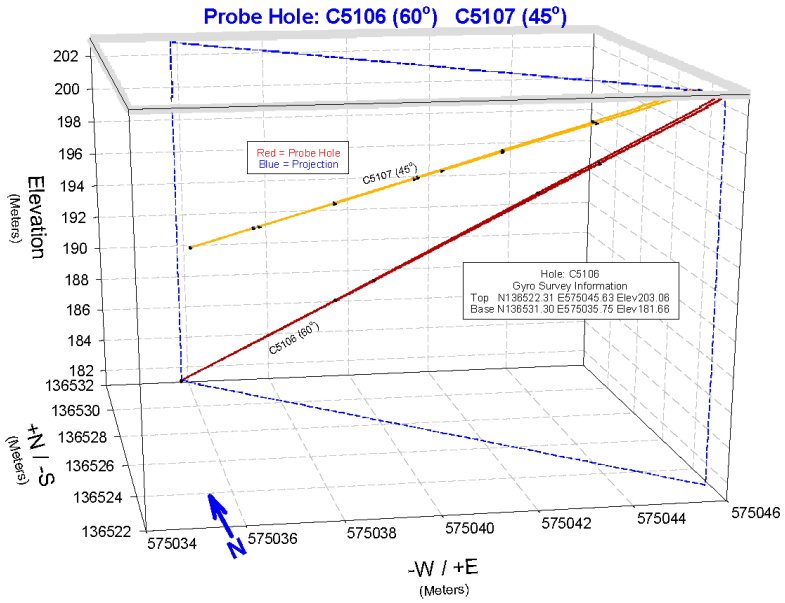
4 Paired Probe Holes

Two slant probe-holes were installed from each heavy steel base plate. The entry location for each incline setting was offset to prevent equipment damage. The two paired probe holes for each of the three entry locations are presented together in one plot. The primary gyro survey for each probe-hole is shown. The three paired probe-hole plots follow.

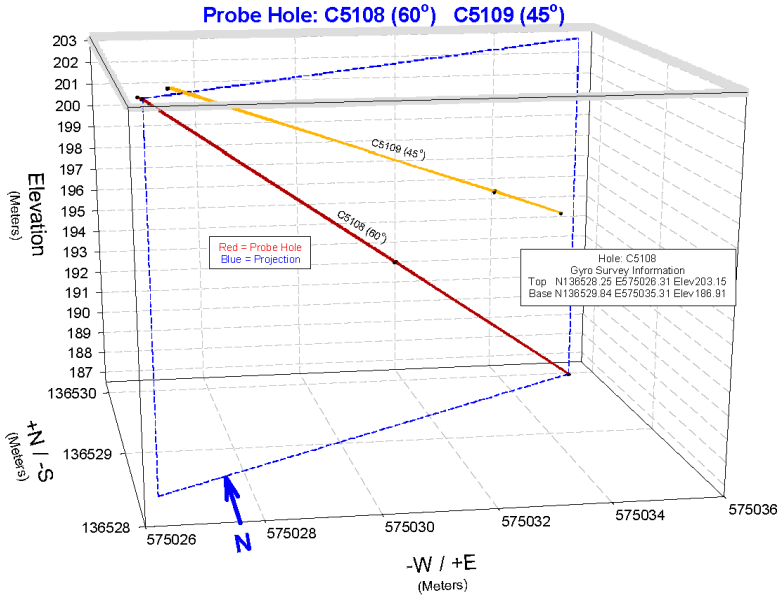
4.1 Paired Probe Holes C5104 and C5105



4.2 Paired Probe Holes C5106 and C5107



4.3 Paired Probe Holes C5108 and C5109



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APPENDIX N

WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTATION (ANGLE)

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Duratek, Inc.
345 Hills Street
Richland, Washington 99354-5507
(509) 376-7055 - Phone
(509) 372-1435 - Fax

February 22, 2006

MGG-06-4135

State of Washington
Department of Ecology
Water Resources Program
Well Drilling Unit
Post Office Box 47600
Olympia, Washington 98504-7600

To Whom It May Concern:

NOTICE OF INTENT TO CONSTRUCT AND DECOMMISSION GEOTECHNICAL BORINGS

Attached are the Notice of Intent to Construct (S27627) and Notice of Intent to Decommission (A30593) Geotechnical borings. These Notice of Intent forms have been completed with information pertaining to eight borings. These borings are located on the Hanford site.

These Geotechnical borings are located in the 200 East Area, C Tank Farm. These borings are designated as C5104, C5105, C5106, C5107, C5108, C5109, C5110, and C5111.

If you have any questions, please contact me at (509) 372-8029.

Very truly yours,

M. G. Gardner, Manager
Sampling and Well Services

jmt

Attachments 2

CHG	- H.A. Sydnor	H6-03
FH	- G. G. Kelty	E6-35
Duratek	- K. D. Reynolds	H1-11
	D. E. Skoglie	H1-11
	S. H. Worley	H1-11
	MGG File/LB	
	CHG/RC6001	

NOTICE OF INTENT TO CONSTRUCT A

Notification Number S 27627

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Please check one: ☒ GEOTECH SOIL BORING (NA DEL)
☒ 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) 372-9176
   Address (include city, state, zip) 825 Jadwin Richland, Wa. 99352
2. Consulting Firm (if different from #1): Duratek Inc. Phone No. (509) 372-8029
   Address (include city, state, zip) 345 Hills ST. Richland, Wa. 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 Eight (8)
6. Approx construction start date March 2, 2006

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 Site, 200 East Area, C Tank Farm
8. Tax parcel number N/A

9. Contractor L & I Registration No. DURATFS990KS
10. Well Drilling Company Name Duratek Inc. Phone No. (509) 372-8029
11. Well Driller Name Scott Worley License No. 1976

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 27627

RETURN NAME AND MAILING ADDRESS

Name Scott Worley
Mailing Address 345 Hills ST.
City Richland State Wa Zip 99352

Client Name _____

Agency Validation

ECY 040-55 (Rev. 10/02)

Notification Number

A 30593

Notice of Intent to DECOMMISSION A WELL

This form must be received by the Department of Ecology with the required fees three days before you decommission a well. Complete both sides of this form. Submit one form for each job site. Mail this form to 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.

1. Property Owner: U.S. Department of Energy Phone No. (509) 372-9176
   Address: 825 Jadwin Richland, Wa. 99352
2. Agent (if different from #1): Duratek Inc. Phone No. (509) 372-8029
   Address: 345 Hills St. Richland Wa. 99352
3. Job Site/Well Location: SW ¼ of the NE ¼ Section 2 Township 12N Range 26 E.WM or W.WM (circle one)
   Street Address (if known): Hanford Site, 200 East Area, C Tank Farm
4. Well Identification No: C5104 Through C5109
5. Location of Well(s): *(please check county)*

☐ Adams County	01-ERO	☐ Grays Harbor County	14-SWR	☐ Pierce County	27-SWR
☐ Asotin County	02-ERO	☐ Island County	15-NWR	☐ San Juan County	28-NWR
☒ Benton County	03-CRO	☐ Jefferson County	16-SWR	☐ Skagit County	29-NWR
☐ Chelan County	04-CRO	☐ King County	17-NWR	☐ Skamania County	30-SWR
☐ Clallam County	05-SWR	☐ Kitsap County	18-NWR	☐ Snohomish County	31-NWR
☐ Clark County	06-SWR	☐ Kittitas County	19-CRO	☐ Spokane County	32-ERO
☐ Columbia County	07-ERO	☐ Klickitat County	20-CRO	☐ Stevens County	33-ERO
☐ Cowlitz County	08-SWR	☐ Lewis County	21-SWR	☐ Thurston County	34-SWR
☐ Douglas County	09-CRO	☐ Lincoln County	22-ERO	☐ Wahkiakum County	35-SWR
☐ Ferry County	10-ERO	☐ Mason County	23-SWR	☐ Walla Walla County	36-ERO
☐ Franklin County	11-ERO	☐ Okanogan County	24-CRO	☐ Whatcom County	37-NWR
☐ Garfield County	12-ERO	☐ Pacific County	25-SWR	☐ Whitman County	38-ERO
☐ Grant County	13-ERO	☐ Pend Oreille County	26-ERO	☐ Yakima County	39-CRO

6. Please fill out the portion below carefully. The return address label must contain the name and address of the person submitting this notification. This portion will be validated and returned to them as proof of notification. Send the entire form to Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.

This notification number must be provided to your well driller:

A 30593

Submitted by (return address)

Name Scott Worley
Mailing Address 345 Hills St.
City Richland, State Wa Zip 99352

Agency Validation

[redacted]

Continued on back ⟶

ECY 040-24 (Rev. 10/96)

7. Approximate well construction start date: March 4, 2006

   Approximate well construction end date: May 01, 2006

8. Well Drilling Company: DuraTEK INC. Phone: (509) 372-8029

9. Well Contractor's Name: Scott Worley Driller's License No. 1976

10. Contractor's Registration No: DURATFS990KS

(registration under Labor & Industries)

AGENCY USE

Your notification could not be validated. Please return with:

_____ **Well location (see #3).**

_____ **Name/Address of property owner (see #1).**

Instructions

Item 1: *Property owner's name, daytime phone number and mailing address. Omission of this information may result in processing delays.*

Item 2: *Agent's name. If your driller, consultant or another person is acting as your agent and submitting this notification fee, please provide their name, address and daytime phone number. A payment receipt will be mailed to them.*

Item 3: *Please provide the Township, Range, Section, quarter section, and quarter/quarter section where the well is located. This information can be found in your property legal description or the County Assessor's office. Also, if you have a street address for this property, please provide this information.*

Item 4: *If the well has a Department of Ecology Well Identification tag on it, record the six-character identifier here.*

Item 5: *Check the county in which the well is located.*

Item 6: *Please print when filling out the return address label. It should include the name and mailing address of the person submitting the form. Mail the entire form to the Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.*

Items 7-10: *This information should be obtained from your driller.*

For Assistance:
Contact the Department of Ecology Regional Office where the well is located (see codes in Item #5).

Central Regional Office	*(CRO):*	*(509) 575-2490*	*TDD: (509) 454-7673*
Eastern Regional Office	*(ERO):*	*(509) 456-2926*	*TDD: (509) 458-2055*
Northwest Regional Office	*(NWR):*	*(206) 649-7000*	*TDD: (206) 649-4259*
Southwest Regional Office	*(SWR):*	*(360) 407-6300*	*TDD: (360) 407-6306*

Ecology is an Equal Opportunity and Affirmative Action Employer.
For special accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (306) 407-6006.

ENERGYSOLUTIONS

Duratek
Federal Services

October 10, 2006 MGG-06-4567

State of Washington
Department of Ecology
Nuclear Waste Program
Hanford Project
3100 Port of Benton Blvd
Richland, Washington 99354

Subject: Water Well Reports

To Whom It May Concern,

Attached are Water Well Report forms addressing decommissioning and completion operations for three geotechnical borings. The Water Well report forms have been completed with information from field operations (reference Notice of Intent Start Card S27633). These geotechnical borings are located on the Hanford Site, 200 East Area, C Tank Farm.

These geotechnical borings are designated as C5104, C5105 and C5107 (resistivity probe installation). If you have any questions, please contact me at 372-8029.

Very truly yours,

M. G. Gardner, Manager
Well Services

jmt

Attachments

CHG - H. A. Sydnor

FH - G. G. Kelty

ES - K. D. Reynolds
D. E. Skoglie
MGG File/LB
CHG/RC6024

345 Hills Street • Richland, Washington 99354-5507
509-376-7055 • Fax: 509-372-1435 • www.energysolutions.com

ENERGYSOLUTIONS

MGG-06-4567

ATTACHMENT

Water Well Reports
(consisting of three pages)

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 S27627

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Evaluation

TYPE OF WORK: Owner's number of well (if more than one) C5104

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 109 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 0.0 ft. to 109 ft.

Perforations: ☐ Yes ☒ No
Type of perforator used ____
SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft. to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location ____
Manufacturer's Name ____
Type ____ Model No. ____
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ____
Materials placed from ____ ft. to ____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? ____ ft.
Material used in seal ____
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

PUMP: Manufacturer's Name ____
Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level ____ ft. below top of well Date ____ N/A
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
Airtest gal./min. with stem set at ____ ft. for ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? ☐ Yes ☐ No

CURRENT

Notice of Intent No. A30593

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 on a 45	0	108.5
degree angle to a depth of		
108.5 ft bgs.		
Soil samples were obtained at		
13.5 to 15.5 ft bgs and		
108.5 to 110.5 ft bgs.		
Casing was back-pulled while	110.5	0
filling with cement (43 gal).		
NOTE 1: Geophysical logging		
(Gamma and Moisture) were		
conducted prior to sampling.		
NOTE 2: A Gyro was		
periodically run to		
determine direction		
of the boring.		
NOTE 3: This boring is		
located on the Handord		
Site; C Tank Farm		

Start Date 04/28/06 Completed Date 05/22/06

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 Duratek Inc.

Address 345 Hills St.

City, State, Zip Richland, Washington, 99352

Contractor's Registration No. DURATFS990KS Date 07/07/06

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 S27627

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Evaluation

TYPE OF WORK: Owner's number of well (if more than one) C5105

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 83 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 0.0 ft. to 83 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. A30593
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 on a 30 degree angle to a depth of 83 ft bgs.	0	83.0
Soil samples were obtained at 13.0 to 15.5, 26.0 to 28.2 and 83.0 to 85 ft bgs.		
Casing was back-pulled while filling with cement (43 gal) and 5 gallon bentonite.	85.0	0
NOTE 1: Geophysical logging (Gamma and Moisture) were conducted prior to sampling.		
NOTE 2: A Gyro was periodically run to determine direction of the boring.		
NOTE 3: This boring is located on the Handord Site; C Tank Farm		

Start Date 05/22/06 Completed Date 06/06/06

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 Duratek Inc.
Address 345 Hills St.
City, State, Zip Richland, Washington, 99352
Contractor's Registration No. DURATFS990KS Date 07/07/06

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 S27627

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Evaluation

TYPE OF WORK: Owner's number of well (if more than one) C5107

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 62.5 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 0.0 ft. to 62.5 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. A30593
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 on a 45 degree angle to a depth of 62.5 ft bgs.	0	62.5
Soil samples were obtained at 17.0 to 19.0 ft bgs, 22.5 to 24.5 ft bgs and 59.0 to 61.0 ft bgs.		
Place sand to a depth of 60.5 ft bgs	62.5	60.5
Place resistivity probe at a depth of 60.5 ft bgs.		
Add sand and back-pull drive pipe to a depth of 52 ft bgs.	60.5	52.0
Add bentonite to a depth of 1 ft bgs.	52.0	1.0
Place surface protection and cement in place.		
C Tank Farm		

Start Date 04/28/06 Completed Date 06/08/06

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 Duratek Inc.
Address 345 Hills St.
City, State, Zip Richland, Washington, 99352
Contractor's Registration No. DURATFS990KS Date 07/07/06

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer

Duratek, Inc.
345 Hills Street
Richland, Washington 99354-5507
(509) 376-7055 - Phone
(509) 372-1435 - Fax

April 25, 2006 MGG-06-4250

State of Washington
Department of Ecology
Nuclear Waste Program
Hanford Project
3100 Port of Benton Boulevard
Richland, Washington 99354

To Whom It May Concern:

WATER WELL REPORTS

Attached are the Water Well Report forms addressing decommissioning operations for three geotechnical borings. The Water Well Report forms have been completed with information from field and decommissioning operations (reference Decommissioning Notice of Intent Start Card A30593). These geotechnical borings are located on the Hanford Site, 200 East Area, C Tank Farm. The original Notice of Intent number is S27627.

These geotechnical borings are designated as C5108, C5109, and C5106. If you have any questions, please contact me at 372-8029.

Very truly yours,

M. G. Gardner, Manager
Sampling and Well Services

jmt

Attachments

CHG - H. A. Sydnor

FH - G. G. Kelty

Duratek - K. D. Reynolds
D. E. Skoglie
MGG File/LB
CHG/RC6001

MGG-06-4250

ATTACHMENTS

Water Well Report Forms

Consisting of 4 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* S27627

CURRENT Notice of Intent No. A30593

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 ☑ circle one

Lat/Long (s, t, r Still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Evaluation

TYPE OF WORK: Owner's number of well (if more than one) C5106

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 90.0 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 90.0 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 on a 60 degree angle (from horizontal) utilizing a hydraulic hammer unit mounted on a backhoe.	0	90.0
Soil samples were obtained at 18.5 to 20.5 ft bgs and 90.0 to 92.0 ft bgs.		
Casing was back-pulled while filling with cement (63 gallons).	92.0	0
NOTE 1: Geophysical logging (Gamma and moisture) were conducted prior to sampling.		
NOTE 2: A Gyro was run to determie location of the boring.		
NOTE 3: This boring is located on the Hanford Site, 200 East Area, C Tank Farm.		

Start Date April 07, 2006 Completed Date April 18, 2006

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 Name (Print) David E. Skoglie

Driller/Engineer/Trainee Signature David E. Skoglie

Driller or trainee License No. 1580

Drilling Company Duratek Inc.

Address 345 Hills St.

City, State, Zip Richland, Washington 99353

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Contractor's Registration No. DURATFS990KS Date April 25, 2006

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* S27627

CURRENT Notice of Intent No. A30593

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 ☑ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☑ Other Evaluation

TYPE OF WORK: Owner's number of well (if more than one) C5108

☐ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☑ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 66.0 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 66.0 ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 on a 60 degree angle (from	0	66.0
horizontal) utilizing a hydraulic hammer unit		
mounted on a backhoe.		
Soil samples were obtained at 28 to 30 ft bgs and 66.0		
to 68.0 ft bgs.		
Casing was back-pulled while filling with cement	68.0	0
(40 gallons).		
NOTE 1: Geophysical logging (Gamma and		
moisture) were conducted prior to sampling.		
NOTE 2: A Gyro was run to determie location		
of the boring.		
NOTE 3: This boring is located on the Hanford Site,		
200 East Area, C Tank Farm.		

Start Date March 21, 2006 Completed Date March 29, 2006

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 Name (Print) David E. Skoglie

Driller/Engineer/Trainee Signature David E. Skoglie

Driller or trainee License No. 1580

Drilling Company Duratek Inc.

Address 345 Hills St.

City, State, Zip Richland, Washington 99353

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Contractor's Registration No. DURATFS990KS Date April 25, 2006

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* S27627

CURRENT Notice of Intent No. A30593

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 ☐ circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. N/A

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other Evaluation

TYPE OF WORK: Owner's number of well (if more than one) C5109

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 3.0 inches, drilled 45.0 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 45.0 ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☒ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

N/A

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

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 on a 45 degree angle (from	0	45.0
horizontal) utilizing a hydraulic hammer unit		
mounted on a backhoe.		
Soil samples were obtained at 14.5 to 16.5 ft bgs,		
31.5 to 33.5 and 45.0 to 47.0 ft bgs.		
Casing was back-pulled while filling with cement	47.0	0
(38 gallons).		
NOTE 1: Geophysical logging (Gamma and		
moisture) were conducted prior to sampling.		
NOTE 2: A Gyro was run to determie location		
of the boring.		
NOTE 3: This boring is located on the Hanford Site,		
200 East Area, C Tank Farm.		

Start Date March 30, 2006 Completed Date April 06, 2006

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 Name (Print) David E. Skoglie

Driller/Engineer/Trainee Signature David E Skoglie

Driller or trainee License No. 1580

Drilling Company Duratek Inc.

Address 345 Hills St.

City, State, Zip Richland, Washington 99353

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Contractor's Registration No. DURATFS990KS Date April 25, 2006

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer.

APPENDIX O

SAFETY DOCUMENTATION

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Duratek
Federal Services

Date: October 12, 2004 Time: 10:30 Location: 241 C-Tank Farm	Inspectors: Betty L. Mitchell/Duratek Safety Kent Reynolds/Scientist III Dave Skoglie/Engineer II

Cone Penetrometer boreholes for SST-C-105 & diversion box 241-C-152 — **Report** # 04-010

Background: Borehole drilling activities and sampling inside the C-Tank Farm.

Citation	Findings
1. Electrical	**Observation**: Temporary - staged and ready to use. **Action**: None
2. Sanitation and Housekeeping	**Observation**: HPT trailer microwave and counter tops need to be cleaned to prevent food borne illnesses. The drill rig trailer microwave and coffee pot needs to be cleaned. . ***.1910.141(a)(4)(ii)*** All sweepings, solid or liquid wastes, refuse, and garbage shall be removed in such a manner as to avoid creating a menace to health and as often as necessary or appropriate to maintain the place of employment in a sanitary condition. **1910.141(h)** Food handling. All employee food service facilities and operations shall be carried out in accordance with sound hygienic principles. In all places of employment where all or part of the food service is provided, the food dispensed shall be wholesome, free from spoilage, and shall be processed, prepared, handled, and stored in such a manner as to be protected against contamination. **Action:** Needs to be cleaned up.
3. Emergency Eyewash	**Observation**: Needs to be inspected for expiration date.
4. Support Area	**Observation:** The support tent has pop can, rubber/latex gloves and other debris laying around and being blown by the wind. The area between the three support trailers has some garbage that needs to be picked up. **Action:** Clean up area.

COMMENTS:
Conducted pre-job briefing and prepared to enter the cone-pen truck into the farm for the start of the sampling pushes. No other observations.

Duratek
Federal Services

Date: 7-19-2005 Time: 0520 Location: 241-C-152 Diversion box		Inspectors: Betty L. Mitchell	
Activity: Hydraulic Hammer push/pull sample rods and soil sampling.		Report #:	CHG-BLM-05-01

TOPIC	Yes	No
Daily Inspections	X	
Daily inspections are performed and documented.		
Monthly safety meetings are conducted and documented.		
Weekly safety meetings are conducted and documented.		
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).		
Industrial Hygiene		
Heat/cold stress – issues.	X	
Illumination is adequate.		
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.		
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.		
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.		
A valid RWP is available covering the scope of work currently performed.		
Radiation monitoring coverage meets the RWP requirements.		
Proper PPE is used.		
Fire Protection		
Exits are marked and clear of obstacles.		

Page 1 of 2

Fire extinguishers are provided and have documented monthly inspections.		X
Flammable/combustibles are stored in approved containers.		
Approved containers are properly stored.		
Temporary heaters are located away from combustibles or flammables		
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.		
GFCI's are used on all portable electrical hand-held tools.		
Cords are protected from damage.		
Equipment is grounded as required.	X	
Lockout/tagout practices are followed.		
Extension cords are not "daisy-chained".	X	
Heavy Equipment		
Operators are trained to operate heavy equipment.	X	
Monthly inspections on equipment are documented.		
All heavy equipment is inspected daily by the operator.	X	
Overhead utilities are protected or removed when required.		
A fire extinguisher is in the cab.		
Hearing protection is worn, when required.	X	
Seatbelts are worn.	X	
Defective equipment is tagged and not used.		
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
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:

The Duratek support trailer has the following items that need to be corrected: the fire extinguisher needs to be tagged and inspected, clean the refrigerator and mircowave, and provide MSDSs for Vermiculite and spill material.

Page 2 of 2

Duratek
Federal Services

Date:	7-21-2005	Inspectors:	Betty L. Mitchell
Time:	0520		
Location:	241-C-152 Diversion box		
Activity:	Hydraulic Hammer push/pull sample rods and soil sampling.	Report #:	CHG-BLM-05-02

TOPIC	Yes	No
Daily Inspections	X	
Daily inspections are performed and documented.		
Monthly safety meetings are conducted and documented.		
Weekly safety meetings are conducted and documented.		
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).		
Industrial Hygiene		
Heat/cold stress – issues.	X	
Illumination is adequate.		
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.		
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.		
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.		

Page 1 of 2

Fire extinguishers are provided and have documented monthly inspections.	X	
Flammable/combustibles are stored in approved containers.		
Approved containers are properly stored.		
Temporary heaters are located away from combustibles or flammables		
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.		
GFCI's are used on all portable electrical hand-held tools.		
Cords are protected from damage.		
Equipment is grounded as required.	X	
Lockout/tagout practices are followed.		
Extension cords are not "daisy-chained".	X	
Heavy Equipment		
Operators are trained to operate heavy equipment.	X	
Monthly inspections on equipment are documented.		
All heavy equipment is inspected daily by the operator.	X	
Overhead utilities are protected or removed when required.		
A fire extinguisher is in the cab.		
Hearing protection is worn, when required.	X	
Seatbelts are worn.	X	
Defective equipment is tagged and not used.		
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	
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:

Provide clear safety glasses for the employees to wear during hours of darkness. Dark lens cause the employee to lean into the work when mixing cement and other similar activities.

Duratek
Federal Services

Date:	7-28-2005	Inspectors:	Betty L. Mitchell
Time:	0520		
Location:	241-C-152 Diversion box		
Activity:	Hydraulic Hammer push/pull sample rods and soil sampling.	Report #:	CHG-BLM-05-02

TOPIC	Yes	No
Daily Inspections	X	
Daily inspections are performed and documented.	X	
Monthly safety meetings are conducted and documented.		
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).		
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.		
Containers are labeled.	X	
A list of hazardous materials is available; quantities included if required.		
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.		
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.		

Page 1 of 2

Fire extinguishers are provided and have documented monthly inspections.	X	
Flammable/combustibles are stored in approved containers.		
Approved containers are properly stored.		
Temporary heaters are located away from combustibles or flammables		
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.		
GFCI's are used on all portable electrical hand-held tools.		
Cords are protected from damage.		
Equipment is grounded as required.	X	
Lockout/tagout practices are followed.		
Extension cords are not "daisy-chained".	X	
Heavy Equipment		
Operators are trained to operate heavy equipment.	X	
Monthly inspections on equipment are documented.		
All heavy equipment is inspected daily by the operator.	X	
Overhead utilities are protected or removed when required.		
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.		
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	
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:

Clear safety glasses were obtained for hours of darkness. The weekly safety topic discussed was minimum lighting for the work zone during hours of darkness. Lighting measurements were discussed with the employees. Two areas have less than the minimum light level of 5-foot candles. The two areas are the NW corner of the work zone and the exit area of the change trailer.

Duratek
Federal Services

Date: 8-2-2005 Time: 0435 Location: 241-C-152 Diversion box		Inspectors: Betty L. Mitchell	
Activity: Hydraulic Hammer push/pull sample rods and soil sampling.		Report #:	CHG-BLM-05-02

TOPIC	Yes	No
Daily Inspections	X	
Daily inspections are performed and documented.	X	
Monthly safety meetings are conducted and documented.		
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).		
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.		
Containers are labeled.	X	
A list of hazardous materials is available; quantities included if required.		
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.		
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.		

Page 1 of 2

Fire extinguishers are provided and have documented monthly inspections.	X	
Flammable/combustibles are stored in approved containers.		
Approved containers are properly stored.		
Temporary heaters are located away from combustibles or flammables		
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.		
GFCI's are used on all portable electrical hand-held tools.		
Cords are protected from damage.		X
Equipment is grounded as required.	X	
Lockout/tagout practices are followed.		
Extension cords are not "daisy-chained".	X	
Heavy Equipment		
Operators are trained to operate heavy equipment.	X	
Monthly inspections on equipment are documented.		
All heavy equipment is inspected daily by the operator.	X	
Overhead utilities are protected or removed when required.		
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.		
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	
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:

The light plant lights have been changed to direct the lighting towards the worker's control panel box, aiding in the higher light levels. An electrical cord inspection was conducted inside the controlled work zone. One extension cord to the air monitor has damaged outer insulation. This needs to be repaired or replaced as soon as possible to prevent employee shock. Scott and Harold immediately notified. All extension cords not in use need to be removed from the area and stored out of the elements to protect the outer insulating properties.

The safety topic of the week was Keeping Your Eyes on the Prize – Safety Eye Wear, what markings to look for, and eye care for injuries.

Duratek
Federal Services

Date:	8-11-2005	Inspectors:	Betty L. Mitchell
Time:	0535		
Location:	241-C-152 Diversion box		
Activity:	Hydraulic Hammer push/pull sample rods and soil sampling.	Report #:	CHG-BLM-05-02

TOPIC	Yes	No
Daily Inspections	X	
Daily inspections are performed and documented.	X	
Monthly safety meetings are conducted and documented.		
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).		
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.		
Containers are labeled.	X	
A list of hazardous materials is available; quantities included if required.		
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.		
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.		

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Fire extinguishers are provided and have documented monthly inspections.	X	
Flammable/combustibles are stored in approved containers.		
Approved containers are properly stored.		
Temporary heaters are located away from combustibles or flammables		
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.		
GFCI's are used on all portable electrical hand-held tools.		
Cords are protected from damage.	X	
Equipment is grounded as required.	X	
Lockout/tagout practices are followed.		
Extension cords are not "daisy-chained".	X	
Heavy Equipment		
Operators are trained to operate heavy equipment.	X	
Monthly inspections on equipment are documented.		
All heavy equipment is inspected daily by the operator.	X	
Overhead utilities are protected or removed when required.		
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.		
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	
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:

*An electrical cord inspection was conducted inside the controlled work zone. One extension cord to the air monitor has damaged outer insulation. This needs to be repaired or replaced as soon as possible to prevent employee shock. Scott and Harold immediately notified. ***Repairing the damaged cord per NEC/NFPA requirements has closed this finding.** Employees cleaned up the area from the (non-hazardous-type hydraulic hose failure and replaced the spill kit contents. CHG requested a copy of the MSDS to ensure that the waste materials that contacted the hydraulic oil are properly packaged and labeled for its waste content. Scott Worley will provide them a copy by the end of the shift.

The safety topic of the week was Inspection of electrical cords for damage.

Duratek
Federal Services

Date: 8-24-2005 Time: 0430 Location: 241-C-152 Diversion box		Inspectors: Betty L. Mitchell	
Activity: Hydraulic Hammer push/pull sample rods and soil sampling.		Report #:	CHG-BLM-05-02

TOPIC	Yes	No
Daily Inspections		
Daily inspections are performed and documented.	X	
Monthly safety meetings are conducted and documented.	X	
Weekly safety meetings are conducted and documented.	X	
Signs, Signals and Barricades		
Hazard signs posted, such as noise, PPE, chemical	X	
Radiological signs posted (where required).	X	
Hearing protection signs posted (where required).		
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.		
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.		
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.		

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Fire extinguishers are provided and have documented monthly inspections.	X	
Flammable/combustibles are stored in approved containers.		
Approved containers are properly stored.		
Temporary heaters are located away from combustibles or flammables		
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.		
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.		
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.		
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	
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: (SEE BELOW)		

1. The Driller's assigned trailer MO-998 outside electrical disconnect (at the North side) tongue end has pulled approximately two inches away from the wall to the point that the upper anchor screw is no longer attached to the trailer and the bottom screw is now pulling out. 2. The tongue end of trailer HO-64 4252 (NCO's) garbage can needs to be emptied it is overflowing and the Duratek (Hertz) rental truck license # A03890I needs to have the household waste (paper and paper cups, etc.) removed from the bed to prevent it from blowing out during transit. Both of these findings were corrected immediately. 3. Spill kit absorbent pigs need to be placed in a plastic garbage bag instead of storing them on the ground open to the environment. Corrected immediately. 4. The Duratek trailer needs to have fridge and microwave cleaned as required by 29 CFR 1910. 141 and 1910.120. 5. The trailers need to have insect (spiders that look like the aggressive house spider) remediation. Employees are seeing them inside the trailers and surrounding area.

Duratek
Federal Services

Date: 9-1-2005 Time: 1030 Location: 241-C-152 Diversion box		Inspectors: Betty L. Mitchell	
Activity: Hydraulic Hammer push/pull sample rods and soil sampling.		Report #:	CHG-BLM-05-08

TOPIC	Yes	No
Daily Inspections		
Daily inspections are performed and documented.	X	
Monthly safety meetings are conducted and documented.	X	
Weekly safety meetings are conducted and documented.	X	
Signs, Signals and Barricades		
Hazard signs posted, such as noise, PPE, chemical	X	
Radiological signs posted (where required).		X
Hearing protection signs posted (where required).		
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.		
Hazardous materials stored properly (such as Flammables, combustibles, etc.) have labels, stored in approved container/cabinet, and used properly.		
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.		

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Fire extinguishers are provided and have documented monthly inspections.	X	
Flammable/combustibles are stored in approved containers.		
Approved containers are properly stored.		
Temporary heaters are located away from combustibles or flammables		
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.		
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.		
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.		
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	
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: (SEE BELOW)

1. The Driller's assigned trailer MO-998 outside electrical disconnect (at the North side) tongue end has pulled approximately two inches away from the wall to the point that the upper anchor screw is no longer attached to the trailer and the bottom screw is now pulling out. Scott Snook helped to get this item within the reporting week. I appreciate his extra effort.
2. The Duratek trailer needs to have fridge and microwave cleaned as required by 29 CFR 1910. 141 and 1910.120. The fridge and microwave have been cleaned.
3. The trailers need to have insect (spiders that look like the aggressive house spider) remediation. Employees are seeing them inside the trailers and surrounding area. The area has been sprayed.
4. Radiological boundary signs were falling off. They were corrected immediately.